PB-229 722

CONFERENCE IN THE MATTER OF POLLUTION OF INTERSTATE WATERS OF THE SNAKE RIVER AND ITS TRIBUTARIES. HELD AT LEWISTON, IDAHO ON 15 JANUARY 1964

Public Health Service
Washington, D. C.

15 January 1964

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CONFERENCE

in the matter of

Pollution of Interstate Waters of

the

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and

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January 15, 1964

Leviston, Idaho

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U.S. Department of Health, Education, and Welfare

Washington, D.C.

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Conference in the Matter of Pollution of the Interstate Waters of the Snake River and Its Tributaries (Idaho-Washington), convened at 9:30 a.m., Wednesday, January 15, 1964, at the Lewis & Clark Hotel, Lewiston, Idaho.

PRESIDING:

Mr. Murray Stein, Chief, Enforcement Branch, Water Supply and Pollution Control, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C.

CONFEREES:

Dr. Terrell O. Carver, Administrator of Health, State of Idaho.

Roy M. Harris, Executive Secretary, Washington State Pollution Control Commission.

Richard Poston, Officer in Charge of the Pacific Northwest Division, Enforcement Activities, Department of Health, Education, and Welfare.

PARTICIPANTS:

W. W. Towne, Chief, Comprehensive Plan, Pacific Northwest Division, Department of Health, Education, and Welfare.

J. T. Barnaby, Bureau of Sport Fisheries and Wildlife, Bureau of Commercial Fisheries, United States Fish and Wildlife Service.

David M. Rockwood, North Pacific Division Office, Corps of Engineers, Portland, Oregon.

Melvin C. Ord, Corps of Engineers, Air Base, Walla Walla, Washington.

Lowell S. Johnson, President, Washington State Sportsmen's Council.

Roger James, Washington State Department of Health.

Emil C. Jensen, Chief Sanitary Engineer, Washington State Department of Health.

Charles Roe, Office of the Attorney General, State of Washington.

OTHERS IN ATTENDANCE:

James D. Ellingboe, Chief,Hydrology Division, U.S.B.E., Spokane, Washington.

Maurice H. Lundy, Recreation Planner, Bureau of Outdoor Recreation, U. S. Court House, Seattle, Washington.

Arthur H. Arp, Fishery Biologist, Bureau of Commercial Fisheries, 5807 Franklin Road, Boise, Idaho.

C. H. Whinery, 521 - 8th, Plankston, Washington.

Vincent L. Neal, 1325 Third Street, Lewiston, Idaho.

Russell O. Blosser, National Council for Stream Improvement, Oregon State University, Corvallis, Oregon.

Don R. Bybee, Chief Health Education Section, Idaho Department of Public Health, Room 541, Boise, Idaho.

Nancy Storey, KRLC, Lewiston, Idaho.

Jack Clifford, Lewiston, Idaho.

Art Manley, Vice President, Idaho Wildlife Federation, 1109 - 11th Street, Coeur d'Alene, Idaho.

Frank Cullen, Chairman, Idaho Fish & Game

OTHERS IN ATTENDANCE (Continued):

Commission, 1053 - A Street, Coeur d'Alene, Idaho.

Daniel H. Longwell, Development Engineer, National Council for Stream Improvement, Oregon State University, Corvallis, Oregon.

David A. Matsch, City Engineer, City of Clarkston, Clarkston, Washington.

Don Rice, Spokane Chronicle, Spokane, Washington.

W. L. Mills, Director, Governmental Affairs, Boise Cascade Corp., Box 200, Boise, Idaho.

E. W. Assilstein, Regional Engineer, Water Pollution Control Commission, 321 Hutton Building, Spokane, Washington.

Thomas O. Clemetson, Senior Chemist, Washington State Pollution Control Commission, 409 Public Health Building, Olympia, Washington.

George H. Hansen, Washington Pollution Control Commission, 409 Public Health Building, Olympia, Washington.

W. M. Van Norn, Chairman, Department of Biology, The Institute of Paper Chemistry, Appleton, Wisconsin.

Bart A. Brassey, Managing Director,

OTHERS IN ATTENDANCE (Continued):

Associated Industries of Idaho, Box 381, Boise, Idaho.

James F. Keating, Area Fisheries Biologist, Idaho Fish & Game, 704 Bryden, Lewiston, Idaho.

C. J. Hopkins, Secretary, Potlatch Forests, Inc., P.O. Box 600, Lewiston, Idaho.

Earl C. Reynolds, Jr., Partner, Cornell, Howland, Hayes & Merryfield, Engineers, Box 829, Boise, Idaho.

A. J. Tesks, Secretary-Manager, Idaho Mining Association, Box 1772, Boise, Idaho.

James A. Crom, Stevens & Thompson, Consulting Engineers, Portland, Oregon.

Claude Fite, U. S. D. A., Clarkston, Washington.

Jack E. Kirkendall, Washington State Game Department, Walla Walla District Office, Walla Walla, Washington.

George K. Higen, Higen's Sporting Goods, 906 Sixth Street, Clarkston, Washington.

Sylvia Harrell, Reporter, Lewiston Morning Tribune, Lewiston, Idaho.

Arthur Van't Hul, Public Health Engineer, Idaho Department of Health, Lewiston, Idaho.

OTHERS IN ATTENDANCE (Continued):

Vaughn Anderson, Idaho Department of Health, Lewiston, Idaho.

Harlan Formo, Idaho Department of Health, Lewiston, Idaho.

Charles C. Limeberry, Asotin County Sportsmen Association, Clarkston, Washington.

Orlin Jeffreys, Potlatch Forests, Inc., Lewiston, Idaho.

Richard N. Congreve, Potlatch Forests, Inc., Lewiston, Idaho.

William B. Watson, Assistant City Engineer, Lewiston, Idaho.

Fred O. Graeber, M.D., Deputy Administrator of Health, Idaho.

George A. Freeman, North Central District, Health Department, Lewiston, Idaho.

Karl E. Vogel, McKean, Pennsylvania.

John H. Allen, Remford, Maine.

R. W. Eastwood, M.D., North Central District, Health Department, Lewiston, Idaho.

Don Steele, Washington State Department of Game, Clarkston, Washington.

Richard L. Olson, Asotin County Sportsmen, Clarkston, Washington.

OTHERS IN ATTENDANCE (Continued):

Glenn Christensen, Asotin County Sportsmen Association, Clarkston, Washington.

Gilbert H. Dunstan, Professor of Sanitary Engineering, Washington State University, Pullman, Washington.

Gahn A. Rogers, M.D., Part-time Health Officer, Asotin County, Clarkston, Washington.

PROCEEDINGS

MR. STEIN: The conference is open. This conference in the matter of pollution of the interstate waters of the Snake River and its tributaries in the Lewiston-Clarkston area, involving the States of Idaho and Washington and the Department of Health, Education, and Welfare, is being held under the provisions of Section 8 of the Federal Water Pollution Control Act.

Under the provisions of the Federal Act, the Secretary of Health, Education, and Welfare is required to call a conference of this type, when on the basis of reports, surveys or studies he has reason to believe that pollution of interstate waters subject to abatement under the Act is occurring.

The purpose of the conference is to bring together representatives of the State water pollution control agencies and the Department of Health, Education, and Welfare, and other interested parties to review the existing situation, the progress which has been made, and to lay a basis for future action by all parties concerned, and to give the States, localities and industries an opportunity to take any remedial action which may be indicated under State and local law.

The conference technique is a rather old one. It is used by many State agencies informally in the normal conduct of their business in the field of water pollution control. The concept of a conference was proposed by the United States Supreme Court as long ago as 1921 in the famous case of New York against the State of New Jersey involving interstate pollution.

I would like to quote briefly from this court opinion: "We cannot withhold the suggestion, inspired by the consideration of this case, that the grave problem of sewage disposal presented by the large and growing population living on the shores of New York Bay is one more likely to be wisely solved by cooperative study and by conference and mutual concession on the part of representatives of the States so vitally interested in it than by proceedings in any court, however constituted."

We strongly support the conference technique, and we in the Federal program measure our success by the situations which are solved at the conference stage, rather than by the number of court actions we bring.

Under Section 8 of the Federal Water Pollution Control Act, the Secretary of Health, Education, and Welfare has notified the official State water pollution control agencies of this conference. These agencies are the Idaho Department of Health and the Washington State Pollution Control Commission.

Idaho will be represented by Dr. T. O. Carver, and Washington will be represented by Mr. Roy Harris, Executive Secretary of the Washington State Pollution Control Commission. Mr. Richard Poston, officer in charge of the Pacific Northwest Water Pollution and Control Activities, has been designated as conferee for the Department of Health, Education, and Welfare.

My name is Murray Stein, and I am from Washington, D. C., headquarters of the Department of Health, Education, and Welfare.

The representatives of the official agencies are privileged to bring whomever they wish to the conference and have them participate in it. However, this is a conference between the representatives of the State agencies and the representatives of the Department of Health, Education, and Welfare. These parties constitute the conferees.

Both the States and the Federal Government have responsibilities in dealing with interstate pollution control problems. The Federal Water Pollution Control Act declares that the States have primary rights and responsibilities for taking action to abate and control interstate pollution. It has always been the policy of the Department of Health, Education, and Welfare to give full recognition to this traditional role of the States. The function of the Department is to encourage the States in these activities. However, the Department of Health, Education and Welfare is charged by law with specific responsibilities in connection with interstate pollution control problems.

The Federal Water Pollution Control Act provides that pollution of interstate waters, whether the matter causing or contributing to such pollution is discharged directly into such waters, or reaches such waters after discharge into a tributary of such waters, which endangers the health or welfare of persons in a State other than that in which the discharge originates, is subject to abatement. The conference will be useful, we hope, in providing a clear picture of the problem, in delineating the progress which has already been accomplished, and in indicating what still needs to be done, if anything, to correct the problem.

Under the Federal Law the Secretary is required, at the conclusion of the conference, to prepare a summary of it which will be sent to all the conferees. The summary, again according to law, must include the following:

1. Occurrence of pollution of interstate waters subject to abatement under the Federal Act;

2. Adequacy of measures taken toward abatement of the pollution; and

3. The nature of delays, if any, being encountered in abating the pollution.

Subsequent to the holding of a conference, the Secretary of Health, Education, and Welfare is required to make recommendations for remedial action if such recommendations are indicated.

Now a word about the procedures governing the conference. A record and verbatim report will be made of the conference to give us an exact record of what is said and done here and to enable us to prepare a serviceable summary. Mr. Mauri Stach is making this stenographic report. We will make copies of the summary and the transcript available to the official State water pollution control agencies of Idaho and Washington. We would suggest that anyone interested in obtaining a copy of the summary or the transcript, after the conference, get in touch with their State agencies in Idaho and Washington. We have found that this is the best means of securing the maintenance of proper Federal-State relations.

All the conferees will be called upon to make statements. The conferees, in addition, may call upon the participants they have invited to the conference to make statements. At the conclusion of such statements, the conferees will be given an opportunity to comment or ask questions and, on occasion, I might ask a question too. This procedure has proved effective in the past in developing a clear picture of the problem and in reaching agreements on equitable solutions.

At the end of all the statements, we will have a discussion among the conferees and try to arrive at a basis of agreement on the facts of the situation. Then we will attempt to summarize the conference orally, giving the conferees, of course, the right to amend or suggest modifications of the summary.

We would suggest that persons other than conferees called upon to make statements come up to the lectern to speak. And we would like them to identify themselves for the record as to name and organization.

Now, at this time, we would like to call on Mr. Richard Poston, the conferee for the Department of Health, Education, and Welfare.

Mr. Poston.

STATEMENT BY RICHARD POSTON, U. S.
DEPARTMENT OF HEALTH, EDUCATION, AND
WELFARE, ENFORCEMENT ACTIVITIES,
PACIFIC NORTHWEST OFFICE

MR. POSTON: Thank you, Mr. Stein.

I would like to enter into the record a copy of the report on pollution of the Snake River near and below Lewiston, Idaho, and Clarkston, Washington, by G. N. Dietrich, Sanitary Engineer of our office.

So that the conferees may know what is in this, I am going to read it.

DR. CARVER: Mr. Chairman, I wonder if I could ask a question.

MR. STEIN: Surely.

DR. CARVER: I would like to ask Mr. Poston if he would read also into the record the date of that report.

MR. POSTON: The date is December, 1963. This morning I made some changes which I will refer to, so that it will be somewhat different than the report that you had earlier, Dr. Carver.

DR. CARVER: Are you making that as a statement or a question?

MR. POSTON: It is a statement, and I will explain the changes that have been made.

Richard Poston

This report reviews the pollution of the interstate waters of the Snake River in the vicinity of Lewiston, Idaho, and Clarkston, Washington. Emphasis is placed on the causes of water pollution and on the resulting interference with legitimate water uses.

Primarily, the analytical data presented in this report resulted from a survey conducted by the Public Health Service in July and August of 1963. The purpose of that survey was to develop information to advise the Corps of Engineers on water quality changes that can be expected when impoundments constructed downstream produce a ponded condition in the Lewiston-Clarkston area. The two-fold objectives of the survey were to determine present water quality conditions and to evaluate the effect of impoundments on future water quality. The Snake River, from five miles above to 30 miles below Lewiston-Clarkston, and four miles of the Clearwater River above its junction with the Snake were surveyed. Stream samples were taken for chemical, physical, and bacterial determinations. Limited waste source sampling and sludge bed investigations were included in the survey, also.

In the preparation of this report, information has also been obtained from the Public Health Service National Water Quality Network stations on the Clearwater

River at Lewiston and on the Snake River at Wawawai, Washington. Material, information, and assistance were contributed by the following agencies:

Idaho State Department of Health
Washington State Pollution Control Commission
City of Lewiston
U. S. Corps of Engineers
U. S. Fish and Wildlife Service

This report has been prepared by G. N. Dietrich, Sanitary Engineer for the Enforcement Activities Section of the Pacific Northwest Office of the Public Health Service, Portland, Oregon.

By definition, the Lower Snake River begins near Weiser, Idaho, and flows northward, forming first the boundary of Idaho and Oregon, and later, 37 miles of the boundary of Idaho and Washington. At Clarkston, Washington, and Lewiston, Idaho, the river makes an abrupt turn to the northwest and flows through the State of Washington to its confluence with the Columbia River.

As it flows toward Lewiston-Clarkston, the river is carried in deep, narrow canyons through high plateau country. Lowlands adjacent to the river are limited to narrow belts of land in the bottom of canyons. Population is sparse and agriculture is limited. Therefore, there is

Richard Poston

little immediate opportunity for pollution of the Snake River before it reaches the Lewiston-Clarkston area.

The Clearwater River is an intrastate stream that flows westward through Idaho to meet the Snake River at Lewiston. Like the Snake, its valley is sparsely populated above Lewiston, and the waters reach the Lewiston area in a relatively unpolluted condition.

The Lewiston-Clarkston urban area supports a population of over 31,000, two-thirds residing on the Idaho side of the river. Asotin, Washington, with a population of 800, is located some five miles upstream on the Snake River. The locations are shown there on the map.

The economy of the Lewiston-Clarkston area is built around the forest products and food processing industries. Potlatch Forests, Inc., at Lewiston, operates a complex of wood products manufacturing facilities that produce pulp, paper, lumber, plywood, and fuel by-products. The principal food processors are: Seabrook Farms Company, a potato and pea processor, and Smith Frozen Foods, a pea processor, both in Lewiston, Idaho, and two meat packing firms in Clarkston, Washington, the Bristol Packing Company and Meats, Incorporated.

This report deals with the causes and effects of water pollution in the Snake River in the vicinity of

Lewiston-Clarkston and with the lower four miles of the Clearwater River.

During the first week of the survey, average stream flow in the Snake River below the Clearwater near Clarkston was 27,060 cfs; during the second survey period, it was --

DR. CARVER: Mr. Poston, I wonder if you could explain what "cfs" means?

MR. POSTON: That is the measure of flow in the river, and that is cubic feet per second.

DR. CARVER: 27,060 cubic feet per second?

MR. POSTON: Right.

During the second survey period, it was 23,120 cfs. Corresponding flows in the Clearwater River at Spalding were 5,465 cfs and 4,465 cfs. These are higher than the average annual low flows of approximately 18,500 cfs in the Snake River and 3,000 cfs in the Clearwater River, which occur during August and September.

The Snake River in the Lewiston-Clarkston area is used for **an expanding variety of** recreational activities, including swimming, boating, water skiing, waterfowl hunting, and fishing. In addition to these water uses, the river serves as a migratory pathway and spawning ground for an important anadromous fishery and as a habitat for a large resident fishery.

Both Lewiston and Clarkston maintain attractive public bathing beaches within their city limits. In the summer months, each of these beaches serves approximately 200 persons per day. Water skiing and pleasure boating are popular. Several excellent small boat marinas are located on the Lewiston-Clarkston waterfront to support these activities.

At the confluence of the Clearwater River, the Snake River bends to the west and becomes an intrastate stream in Washington. As a result of pollution, the waters become offensive and unattractive for water contact sports. Below the Washington line, the river is used only occasionally for pleasure boating or water skiing. Attractive beaches are located in the lower section of the river.

Some use is made of the Snake River waters below the Lewiston-Clarkston area for irrigation. Spray irrigation of orchard and truck farm crops grown on the narrow bands of land in the canyons adjacent to the river is practiced.

The authorized construction of Lower Granite Dam, 32 miles below the Lewiston-Clarkston area, will form a reservoir extending to and past these two cities. When completed in 1970, this impoundment will increase the water depths to some 38 feet along the Lewiston-Clarkston water front and will reduce present minimum velocities of about three to six feet per second to less than one-half foot per second. These deep, quiet waters located adjacent to and readily accessible to a major population center can be expected to support a greatly expanded participation in water-oriented recreational activities. There is good reason to believe that a sizable portion of the future recreational use will be located below both the Interstate Bridge and the several existing points of waste discharge.

(Figure 1 appears as follows:)

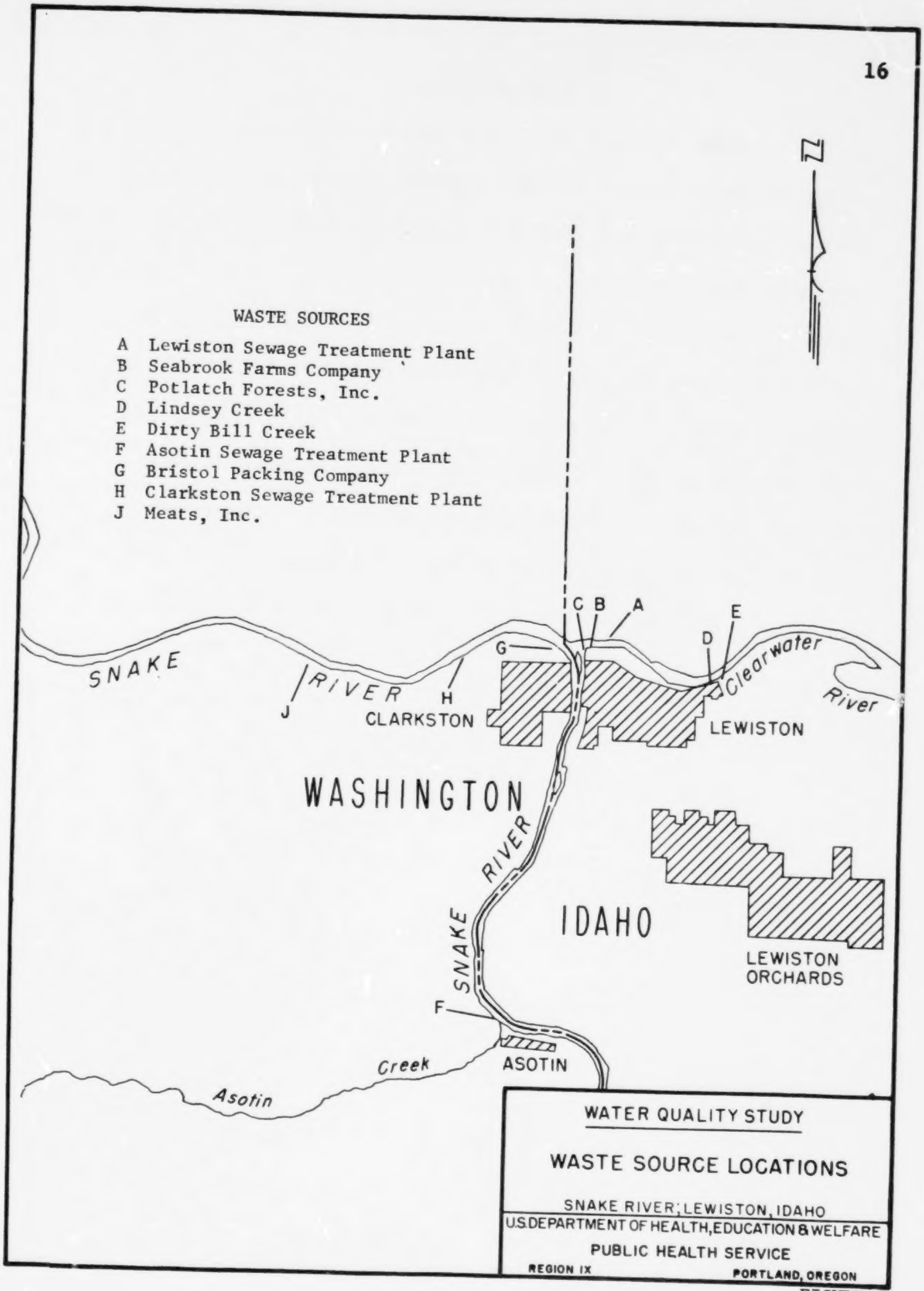

WASTE SOURCES
A Lewiston Sewage Treatment Plant
B Seabrook Farms Company
C Potlatch Forests, Inc.
D Lindsey Creek
E Dirty Bill Creek
F Asotin Sewage Treatment Plant
G Bristol Packing Company
H Clarkston Sewage Treatment Plant
J Meats, Inc.
N
C
B
A
E
D
G
SNAKE RIVER
H
J
Clearwater River
CLARKSTON
LEWISTON
WASHINGTON
SNAKE RIVER
IDAHO
LEWISTON ORCHARDS
F
ASOTIN
Asotin Creek
WATER QUALITY STUDY
WASTE SOURCE LOCATIONS
SNAKE RIVER; LEWISTON, IDAHO
U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
PUBLIC HEALTH SERVICE
REGION IX
PORTLAND, OREGON

FIGURE 1

Figure 1 -- and that is essentially what we have on the map -- illustrates the location of principal sources of wastes in the Lewiston-Clarkston area. Briefly, their sizes and characteristics are:

A. The Lewiston sewage treatment plant serves the Lewiston population of 12,000 and 1,000 persons in suburban Lewiston Orchards. This treatment plant is a modern, well maintained, and efficiently operated facility. Primary sedimentation and effluent chlorination are accomplished, with the effluent discharged to the north side of the Clearwater River, 0.8 miles above its confluence with the Snake River.

C. Potlatch Forests, Inc., operates a lumber and plywood plant, a 650-ton/day pulp and paperboard mill, and a recently constructed 50-ton/day tissue mill at Lewiston on the south bank of the Clearwater River, a short distance above its mouth. The largest portion of the liquid wastes from these facilities, including all of the wastes from the pulp and paper operation and some of the firm's sanitary sewage from a work force of 2,200 persons, are discharged through an outfall sewer to the Snake River. These wastes enter the river through a submerged, non-diffuser type outlet on the east shore of the Snake River 100 feet above the confluence with the Clearwater River. Waste retention lagoons of small size exist but are not now being used.

B. Seabrook Farms Company, in Lewiston, is a vegetable processor. Peas are packaged during a six-weeks' campaign in June and July, and potatoes for nine months of the year beginning in August. The potato processing capacity of the plant is 150 tons/day. The wastes are not treated and are discharged directly to the Clearwater River one-quarter mile above its mouth.

H. The City of Clarkston serves its entire population of 6,100 with sewage collection. The wastes collected are treated by the city's sewage treatment plant, which employs primary sedimentation and effluent chlorination. Effluent is discharged to the Snake River one mile below Clarkston. While this facility is old, it is well operated and maintained, and provides efficient primary treatment.

F. The Asotin sewage treatment plant receives the municipal sewage from its 800 population. This facility also provides primary sedimentation and effluent chlorination, but the adequacy of treatment is not known.

I would like to insert here that an explanation was made at this plant with Mr. Harris and myself, and it was our conclusion that the plant is efficiently and properly operated.

Richard Poston

Effluent is discharged to Asotin Creek, a short distance above its confluence with the Snake River.

G. Bristol Packing Company is located in Clarkston proper. This meat processor kills up to 50 head of cattle per day, or a maximum of 135 hogs daily. Paunch manure and grease are separated from the liquid wastes and land disposed. The wash water, floor drainage, and kill-blood wastes are not treated. These wastes are discharged directly to the Snake River.

J. Meats, Incorporated, processes an average of 55 head of cattle daily. As with the above firm, paunch manure and grease are separately collected and adequately disposed. Liquid wastes, including kill-blood, are not treated and are discharged to the Snake River. The cattle holding pens adjacent to this plant extend to the river's edge. Cattle are allowed access to the river and the sloping land allows unimpeded surface drainage to its waters. These constitute an additional source of wastes from this firm. Meats, Incorporated, is located two and one-half miles below Clarkston.

All seven of the major Lewiston-Clarkston waste sources contribute organic pollutants to the Snake River. It is customary to express the strengths of such pollutants in terms of their equivalents of raw domestic sewage, the basis for such comparison being the 5-day biochemical oxygen demand. The unit used in these expressions is the population equivalent, P.E. Each such unit represents the equivalent strength of the daily raw sewage contributed by one individual.

At this time I am putting on the board that which is referred to here as Table 1.

(Table 1 is as follows:)

SUMMARY OF THE BIOCHEMICAL OXYGEN DEMAND
POPULATION EQUIVALENTS OF THE WASTES DISCHARGED
TO THE SNAKE AND CLEARWATER RIVERS BY SOURCES
IN THE LEWISTON-CLARKSTON AREA

Source	P.E.	Percent of total
Idaho		
Potlatch Forests, Inc.	299,000	94.0
Lewiston Treated Sewage	8,500	2.7
Seabrook Farms Company	2,300	0.7
Subtotal	309,800	97.4
Washington		
Bristol Packing Company	1,000	0.3
Meats, Inc.	1,800	0.6
Clarkston Treated Sewage	4,600	1.5
Asotin Treated Sewage	600	0.2
Subtotal	8,000	2.6
Total	317.800	100.0

Richard Poston

This Table 1 lists the best estimates available of the organic pollution contributed to the Snake River by the waste sources of concern here. Recognition is first given to the high, total organic content of the wastes going to the Snake River, which are equivalent to the raw sewage from a population of 317,800.

This is one of the figures that was changed today. In the original report it was 312,600. This is a minor adjustment to be a little more realistic on the flow that we feel is contributed by the City of Lewiston.

94 percent of this organic load is contributed by Potlatch Forests, Inc., wastes. However, B.O.D. alone does not sufficiently describe the wastes from this industry. Pulp and paper wastes from Kraft mills must also be judged as to their content of biologically toxic material and solids material. With regard to the first of these, this type of waste contains certain sulfur compounds, which in small amounts can be very toxic to fish and other aquatic life. To date, however, no fishkills have been reported, and there is not sufficient information to judge if toxicity of these wastes is presently a problem.

Now to go to Table 1 and to explain the figures which may be questioned. The Potlatch Forests, Inc., population equivalent of 299,000 was an actual figure obtained at the time of our survey from one sample which we took at the mouth of the sewer outlet in the Snake River. The Lewiston figure is one in which we use a rather conservative figure, I feel, for the reduction of B.O.D. that we would expect, 35 percent, from the primary treatment plant. So the 8,500 that we have is not based on actual sampling, but is 65 percent of the population that we feel is going to the Lewiston municipal sewer system. In other words, 12,000 people for Lewiston, 1,000 people from Lewiston Orchards, and 35 percent has been removed by treatment, so we have a residual there of 65 percent, and I think that comes out to 8,500.

DR. CARVER: Mr. Poston, do I understand you to say that that is an estimate only?

MR. POSTON: That is an estimate only. This could vary from 25 to 50, but 35 percent is a figure that we ordinarily feel is quite a conservative one to use.

The Seabrook Farms population equivalent there of 2,300 is based upon two samples collected during the feed canning campaign and does not represent the conditions when they might have been handling potatoes, and we consider that this is probably a lower figure than that. However, it is based only on two actual samples that we ran on Seabrook.

DR. CARVER: Excuse me again, sir. Do you have information as to what period of the time during the year Seabrook Farms actually is in operation?

MR. POSTON: The report gives that here. There is a six weeks' canning in June and July, and potatoes for nine months of the year beginning in August.

DR. CARVER: Then there is a period of time in which Seabrook Farms is not operating?

MR. POSTON: I think that would be a correct assumption, I suppose when they are changing lines, and that sort of thing.

Then we get to the Bristol Packing Company, and the population equivalent there of 1,000 is based upon samples that were taken.

Meats, Incorporated, similarly, with the population equivalent of 1,800.

The Clarkston population of 4,600 was arrived at similarly with Lewiston, where we allowed 35 percent reduction in B.O.D. by treatment there, and similarly, Asotin. In other words, the municipal wastes were not the result of actual samplings, while the industrial wastes do represent the actual sampling.

To continue then:

The discharge of solids materials from this waste source -- and this is going back to the paper mill waste -- also significant. It was extremely difficult to obtain representative samples of the plant effluent at the submerged outfall. A single sample pumped from the outfall sewer indicated that this source adds 320 tons of solid materials daily to the Snake River.

DR. CARVER: What was the date of your sampling on that?

MR. POSTON: I don't know as I could give you that.

DR. CARVER: This was back during the July - August, 1963, period?

MR. POSTON: That is correct, sometime in that area.

Mr Towne, do you happen to know the date of that?

MR. TOWNE: This was the week of August 22nd to the 31st.

MR. POSTON: Measured volumetrically after one hour of settling, it amounts to over 267,000 cubic feet per day. Roughly one-third of this, 104 tons per day, is suspended material, 90 percent of which is combustible organic matter. This composition of these wastes results from the high content of wood fibers. This fibrous material is settleable and results in sludge deposits on the river bottom. Furthermore, being organic, the sludge deposits continue to ferment after being formed. The material remaining in suspension is unsightly and damaging to the aesthetic appeal of the waters.

Water quality data collected to date indicate that there are two pollution effects to be considered in the Lewiston-Clarkston area. These are: bacterial pollution and damage to aesthetic value.

Bacterial Pollution

The Public Health Service water quality survey of July - August 1963 included only limited bacteriological sampling. The resulting data are at variance with earlier bacteriological data obtained by the States of Idaho and Washington and the Public Health Service National Water Quality Network. Accordingly, the significance of the bacterial pollution in the Snake River below the Lewiston-Clarkston area presently is not clear.

DR. CARVER: Wait a minute. I wonder if I could ask you to clarify that. You say that the figures you got on this are at variance?

MR. POSTON: That is correct.

DR. CARVER: You have not given any figures on this matter; is that right?

MR. POSTON: That is correct. That is why we say it is undetermined at the moment.

DR. CARVER: Well, as I understand it, you haven't even said that you found bacteria, have you?

MR. POSTON: I can say now the report does not say so, but we did find bacteria, and our results were quite different than yours. Due to the illness of our bacteriologist, we had to give up on this part of the survey.

DR. CARVER: My point in raising this question is that you have indicated in the report that you don't know the significance of this variance; is that right?

MR. POSTON: That is right. We don't know whether your figures are right or whether our figures are right.

DR. CARVER: To that extent, you don't know that there is any significance at all to it.

MR. POSTON: That is correct.

MR. STEIN: Let's see if I can understand it. The bacterial counts you got were higher than the bacterial counts before?

MR. POSTON: That is correct.

MR. STEIN: Were they considerably higher?

MR. POSTON: They were in the neighborhood of ten times higher.

MR. STEIN: Ten times higher. In other words, you say it is not clear. Would you say that this should be investigated further, in view of the high counts?

MR. POSTON: Now, if I could go on, the next sentence reads: "Such study could be accomplished effectively by joint and cooperative effort by the States of Idaho and Washington and the Public Health Service." We feel that this is something that should be gone into.

DR. CARVER: I am sure that it should be. This is why I raised this question,my point simply being that in so far as the report you have there is dated December, 1963, this is not a matter of record as to what your findings were.

MR. POSTON: That is right. That is correct.

Damages to Aesthetic Value

A rotten cabbage odor prevails in the Snake River below Potlatch Forests, Inc., waste discharge point. At times, it was difficult to separate water odors from atmospheric odors, also attributed to the pulp and paper mill. On several occasions, however, when the wind was out of the west, precluding the effects of air pollution, distinct odors of the Snake River waters were noted as far as four miles below the discharge point.

Richard Poston

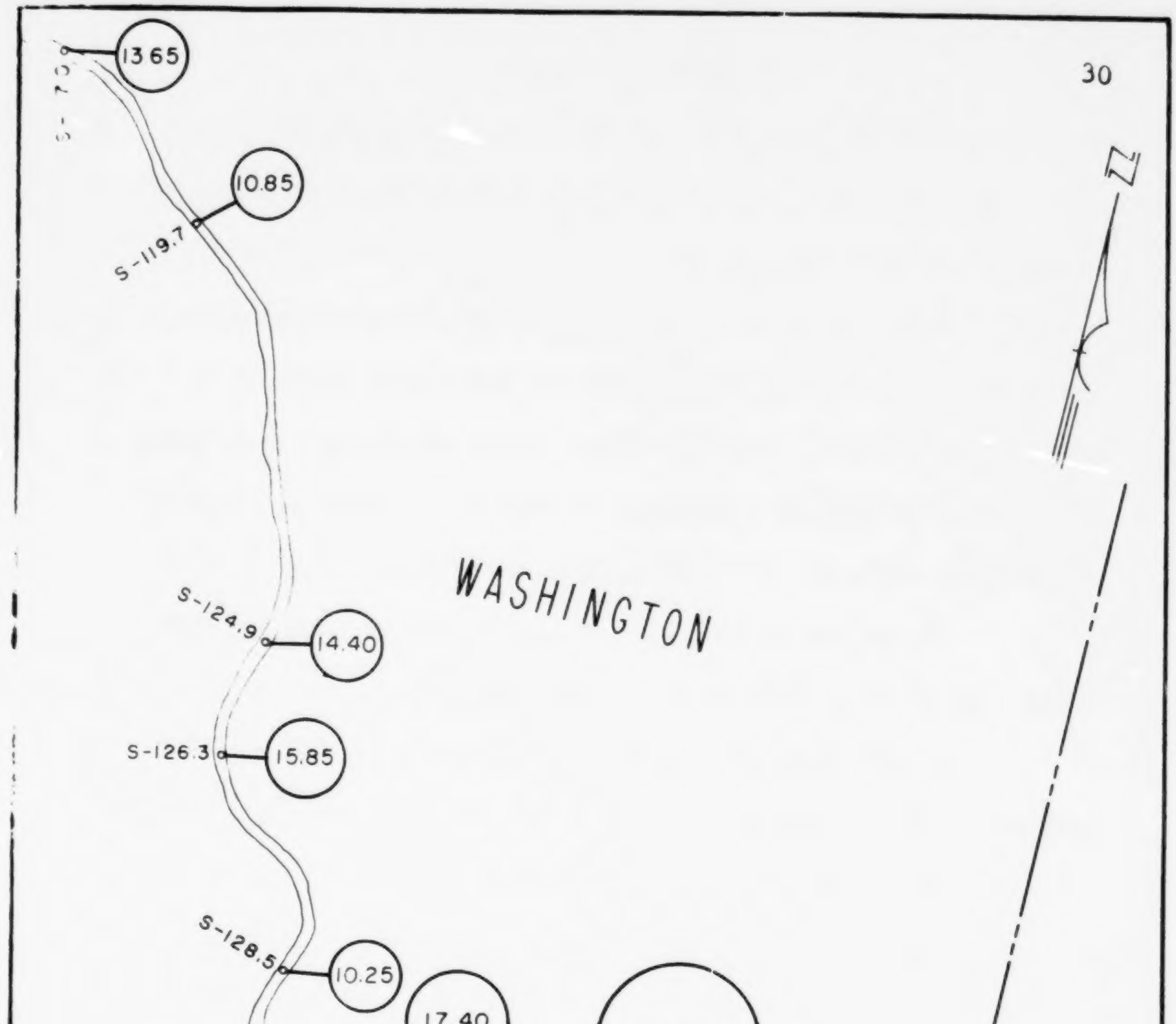
The physical appearance of the Snake River also is damaged by waste discharge in the Lewiston-Clarkston area. By decreasing their attractiveness, the uses of these waters for swimming, boating, water skiing, and fishing are interfered with.

During the latter part of the July - August 1963 survey, notes were made of the physical appearance of the Snake River in the Lewiston-Clarkston area. Generally, the Snake River above the Interstate Bridge can be described as odorless, having almost no turbidity, and very little color. Noticeably apparent in the river immediately below the Washington State line are the aesthetically displeasing odor and visual appearance of the river. These conditions are believed to be in large measure attributable to the waste from Potlatch Forests, Inc. The waste discharged from the pulp and paper mill is vividly evident as a deep brown, odorous, and turbid section in the Snake River from the point of discharge for approximately one-half mile downstream. Below that point, the waste appears to mix more effectively with the entire Snake River flow and is well dispersed when it reaches the point two miles below the Lewiston-Clarkston area. These wastes also contain a high concentration of suspended and settleable solids. During the survey, high suspended settleable solids concentrations were observed in the river for seven miles below the Potlatch Forests, Inc., outfall. Examination disclosed this material to be wood fibers.

Limited sludge bed deposit investigations involved Ekman dredge sampling in several of the pools downstream from the Lewiston-Clarkston area. Four dredgings from each sampling location were shipped to the laboratory for dry weight and percent volatile solids determinations.

As shown in Figure 2 -- and I don't have a large scale map for the audience -- the sludge in a pool 5.7 miles below the pulp and paper mill outfall contained 37.3 percent volatile solids.

(Figure 2 appears as follows:)


13.65
10.85
S-119.7
WASHINGTON
S-124.9
14.40
S-126.3
15.85
S-128.5
10.25
17.40
S-130.8
37.30
S-133.8
6.16
S-137.8
IDAHO
CLARKSTON
LEWISTON
N
5000 0 5000 10,000
SCALE IN FEET
17.40 % Volatile Solids in Sludge Bed Deposits
S-130.8 River Mile

WATER QUALITY STUDY

SLUDGE BED DEPOSITS

SNAKE RIVER, LEWISTON, IDAHO

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE
REGION IX PORTLAND, OREGON

FIGURE 2

Field notes describing the visual appearance of this sample indicated that it was drawn from a well established sludge deposit. The stratified deposit contained sludge in various stages of decomposition, ranging from black septic material to more recent depositions of fresh fibrous material. Samples from the six locations between 8.7 and 22.5 miles below the Potlatch, Forests, Inc., sewer revealed sludge deposits of lower volatile solids contents, ranging from 10.2 percent to 17.4 percent. These samples also included wood fiber material and contained sludge in various stages of decay, from brownish, less septic material, to non-decomposed fibers. These sludge deposits were found in eddies and pools along the banks of the river where velocities were very low and allowed settlement of the water's suspended load. A few dredgings were made in the higher velocity waters near the center of the channel, but no sludge deposits were found. No attempt was made to define the total extent and amount of sludge deposits.

DR. CARVER: Mr. Poston, may I ask another question? Could you determine on the basis of your studies the source of this material in these sludge deposits?

MR. POSTON: I believe it could be, yes, in a rather rough fashion. There isn't going to be a tag on each fiber that comes down, but I think in a general way, yes.

DR. CARVER: You did determine?

MR. POSTON: No, we did not.

Sludge deposits can have a number of effects on river waters from the partial elimination of bottom aquatic life, important as fish food, to the exertion of heavy demands on the dissolved oxygen resources of the waters. In this case, however, insufficient information is available to evaluate such effects.

The Bristol Packing Company and Meats, Inc., both in Clarkston, Washington, discharge blood wastes to the Snake River and create an offensive condition. The bright red discharges are vividly evident; those from the Bristol Packing Company can be seen from the Interstate Bridge. These wastes are rapidly dispersed in the river.

The unpleasant effects of odor, color, and suspended solids occurring in the Snake River waters within the State of Washington are caused by wastes originating in Idaho.

FUTURE EFFECTS OF POLLUTION

The impoundment to be formed by the Lower Granite Dam will change the pollution picture in the Snake River in the Lewiston-Clarkston area. Minimum velocities will be reduced to less than one-half foot per second so that time of water passage from the Interstate Bridge to the dam will increase to more than 11 days during the summer low flow period as opposed to the present 10 hour flow time. Because of this, one-half-day flow time will be required for the first three and one-half river miles below the Interstate Bridge, and wastes discharged in the Lewiston-Clarkston area will be retained for a long time in the area of future increased recreational use. Bacterial pollution can be expected to undergo regrowth to maximum densities in the river waters before passing out of this area. Thus, bacterial densities might well exceed the established limits held necessary to protect the health of the many persons who will be using the impounded Snake River waters in the future. Further, lower velocities will allow for the deposition of a major part of the suspended solids of the wastes now discharged. Sludge beds thus will be formed to the detriment of bottom aquatic life and the oxygen resources of the river. With the biochemical oxygen demand concentrations which now exist, dissolved oxygen resources of the waters passing through Lower Granite Dam very likely will be reduced to about 5.4 ppm, or 66 percent of saturation. This raises questions as to whether adverse effects on the fishery will result. Aside from these over-all pollution effects, individual waste discharges also will cause localized zones of similar but more aggravating pollution conditions by virtue of reduced mixing and dispersion.

These future pollution effects, coupled with the expected increased recreational water use, might well demand that all waste discharges receive the maximum treatment reasonably obtainable. In addition, it may also be necessary to provide diffusion-type outlets to enhance dispersion and to relocate outlets father downstream to help eliminate high waste concentrations at points of intensified recreational use.

Mr. Chairman, at this time I would like to call on Mr. W. W. Towne of our office, who is chief of our comprehensive plan, to make any statement he might as to the reason that we made this survey and his planning for the future.

Mr. Towne.

STATEMENT BY MR. W. W. TOWNE,
U. S. DEPARTMENT OF HEALTH, EDUCATION,
AND WELFARE, ENFORCEMENT ACTIVITIES,
PACIFIC NORTHWEST OFFICE

MR. TOWNE: Mr. Stein, Mr. Poston, Conferees:

Our study that was being carried out here during August and September was being made for the Corps of

Engineers basically for two purposes:

First, to document present water quality conditions in the stream as a matter of record, without giving much regard to sources, but to have a documentation of the quality of the water at this time.

Secondly, to make projections and predictions as to how the regimen change in the stream characteristics resulting from the Lower Granite Dam and operations of other reservoirs above this location, as to what effects these would have on waste assimilative capacity and the pollutional discharge problems within this particular area.

When you create an impoundment, this may result in several effects on water quality, some of which may be beneficial and some of which may be detrimental.

How do impoundments affect quality? Just briefly, to summarize some of the effects of impoundment, as pointed out by Mr. Poston, velocity will be reduced. This will increase the deposition of settleable solids and will create a more favorable environment for the sludge banks from settleable solids that may be in the stream or in the waste discharges.

Also, this impoundment will reduce the flushing action of flood flows. We have found in many of these streams that the stream floods very often flush out sludge banks. Therefore, these sludge banks may only last for a year. With impoundments, they may continue for many years and create an increasing B.O.D. of the stream.

The second effect is that of temperature. Impoundments have been shown in the various sections of the Columbia Basin to create a situation where, very briefly speaking and in general, each of the dams appears to have raised the water temperature essentially 1 degree Centigrade, approximately. This reduces the saturation value for dissolved oxygen, it increases the biological activity, and it provides a more favorable temperature for the propagation of algae and other plankton. These, in turn, tend to give you a greater diurnal variation in dissolved oxygen in the stream. In other words, in the daytime you may have super-saturation. However, at night the respirations of these organisms may cause quite a depression in the dissolved oxygen.

Also, the biological growth that takes place in these reservoirs eventually dies and precipitates in the reservoir, and then forms an additional organic load that utilizes oxygen for its stabilization.

A third effect, and an important one, is that the impoundment decreases the natural re-aeration capabilities of a stretch of the stream. You have reduced the turbulence, you have reduced the mixing, and therefore you have a greatly increased depth, so that you have about the same surface area, roughly speaking, by which oxygen can enter the water from the atmosphere, but you have a much deeper and a much greater volume, and the oxygen re-aeration is greatly reduced.

Fourthly, we feel in this area that an important factor is that of mixing. This stream is a very good stream in so far as mixing is concerned. In our studies here, we noticed that within two or three miles below the Potlatch outfall we got relatively good distribution.

I might say that in our studies here we introduced dyes into the stream and measured these by photometers, and found that we got very good distribution within two or three miles below the stream. In some streams, the slower streams, this may follow one bank for many miles. Under impoundment conditions this mixing is going to be reduced.

So much for the general effects.

We have not yet completed our report to the Corps of Engineers. It is now in the process of preparation. We had been delayed further than we had expected, partially because we wanted to re-evaluate some of our data and also because we wanted to compare it with some of our Public Health Service studies in other sections, and this has required a greater time than we had originally anticipated.

We did find in this study that under the present conditions, the stream self-purification factor, you might say, was roughly 2, which is a ratio of the reoxygenation constant to the deoxygenation constant. In effect, a higher reoxygenation factor indicates that the stream will recover and can assimilate waste at a higher rate than a lower reoxygenation factor.

Now, under the future conditions --

DR. CARVER: Mr. Chairman, may I ask Mr. Towne a question?

MR. STEIN: Surely, if you want to.

DR. CARVER: I am not sure I understand this factor you are referring to. Higher than what?

MR. TOWNE: That is higher than the same factor for another stream. The oxygen resources must come from the atmosphere.

DR. CARVER: Well, let me see if we can make this on some kind of a comparison basis. You have used the figure "2" with respect to the Snake River at the present time.

MR. TOWNE: Yes.

DR. CARVER: Could you give me the same factor in connection, say, with the Ohio River?

MR. TOWNE: Well, that might be 1, or even less.

DR. CARVER: What is the minimum, zero?

MR. TOWNE: No, not entirely, sir. It could get down to a figure, and under these impoundment conditions, we calculate that it will be somewhere in the vicinity of one-sixth of this amount, or roughly to three-tenths.

DR. CARVER: Well, what factor would you use in the stream, say, on the Snake River above Lewiston?

MR. TOWNE: This might get up to four or five.

DR. CARVER: Have you determined this?

MR. TOWNE: No, we haven't. These are general characteristics of the types of streams.

DR. CARVER: I hate to admit my ignorance on this, but this is the first time I have heard of such a factor used, and I want to be sure I completely understand.

MR. TOWNE: It is a measure, in a sense.

DR. CARVER: A measure of what?

MR. TOWNE: It is a measure of the rate of re-aeration to the rate of de-aeration, or the rate of oxygen demand.

DR. CARVER: Does this say then that this stream is re-aerating twice as fast as it is de-aerating? Is that what you are telling me?

MR. TOWNE: The re-aeration constant is twice that of the de-aeration constant, yes, sir. Now, with a highly

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turbulent stream you may get re-aeration factors going up to one and over.

DR. CARVER: So the figure "2" is a --

MR. TOWNE: Is a good stream in so far as assimilation of waste.

During our study here we found some diurnal variations in the dissolved oxygen. We found that the nighttime dissolved oxygens went down to less than saturation, about .85 of saturation, whereas, during the daytime, due to photosynthesis from the biological growth from the algae in the river, the saturation values went to above 100 percent, which is not unusual either.

During this period, our average temperatures were from 20 to 21 degrees Centigrade. We predicted that because of the impoundments these would be somewhat elevated.

I think, Mr. Poston, I might say this: That during the study, we carried out a sampling on fourteen sampling stations, and we made twenty runs on the sampling stations, measuring some during the night and during the daytime, each hour of the 24-hour period. We had a minimum D.O. (Dissolved Oxygen) content in the river of 8.1, and a maximum of 10.6.

I might say that this investigation is a part of a long-time surveillance, or a part of our proposal to the

Corps. We have one more phase of this after the impoundment is in, that we will again recheck it to see how nearly our predictions have come to the actual conditions, and to measure the effects of the discharges to the stream.

I think there is one important factor that I would like to emphasize here. We have discussed this with the State agencies, and we have discussed it informally with the Corps. It will be discussed in our report.

In our planning operations for comprehensive river basin planning, we feel, in this area, that when the impoundment is created here, this has a potential to develop into a very much used recreational area for water contact sports. This in turn, we think, will require a maximum degree of care in protecting the water, both from a bacteriological standpoint, and particularly from a suspended solids standpoint. We expect that there will be some depression in the dissolved oxygen over what has now been measured, due to the fact that the re-aeration rate of the water will be greatly reduced.

Furthermore, with the operation of the reservoirs upstream and downstream, both in the Clearwater and above on the Snake, the Asotin Dam and the Bruces Eddy, the Dworshak Dam on the Clearwater, these can pose certain problems here that are important to this community and, I think, to the State.

One of the factors that is going to require consideration is the relocation of outfalls in such places that you cannot, through reservoir operations, carry waste from the outfall into the Clearwater arm of the impoundment, up to your water treatment plant, for instance. This would be possible under certain operating conditions. With no flow coming out of the Clearwater, with the peak flow going out of Asotin, you could get velocities reversed in the Clearwater River, and if your waste discharges are at these three points, these could be carried up the Clearwater.

DR. CARVER: Does this apply to the waste discharges now going into the Snake River on the Washington side?

MR. TOWNE: I would think that it could be very well from the Bristol Packing. I think, probably, when you get down to the city sewage treatment plant and to Meats, Incorporated, that you are below the zone of influence, where you could get the flow from the Snake coming back up into the Clearwater.

But it would surely apply to the Lewiston discharge and it would apply to Potlatch.

DR. CARVER: How about Asotin and Clarkston? I mean, the packing plants on the Washington side.

MR. TOWNE: Well, I have mentioned the Bristol Packing Company, which is right there. I think the other one is far enough downstream to be below that.

Unless there are further questions, Mr. Poston, I don't believe I have anything further.

MR. POSTON: I would like to ask this: When will your report be out?

MR. TOWNE: We hope that it will be out by the 1st of March. We had originally promised this to the Corps of Engineers before the end of the last calendar year. We were advised by them, however, that we could have some extra time and, furthermore, we wanted to check with the States on their studies, and we met with the States in December.

DR. CARVER: Mr. Towne, are we referring to the 1st of March of 1964?

MR. TOWNE: Yes, sir.

DR. CARVER: Do you have information from the Corps of Engineers, or from any other source, with respect to the anticipated flow characteristics of this stream after impoundment?

MR. TOWNE: We have conferred with them. I can't speak for the Corps. There are Corps people here who can speak better than I, and you may want to direct your questions to them.

DR. CARVER: I was wondering how you would make your projections on the results.

MR. TOWNE: I believe the Corps has investigated in the most severe conditions and the most critical conditions, the average conditions.

DR. CARVER: Well, do you have that information from the Corps now?

MR. TOWNE: We have most of that information from them now. We conferred with them just within the past ten days to get additional information that we didn't have. But I don't think the Corps or anyone else is in a position to say just how these will be operated. I would say surely that these are likely to be operated eventually, when we get firm power, maybe, from hard fuels, in which case they would come on the line --

DR. CARVER: Who is going to operate these?

MR. TOWNE: I judge the Corps of Engineers under the Bonneville Power hookup.

DR. CARVER: Do I understand you then to say that you do not think the Corps knows how it is going to operate these?

MR. TOWNE: I think that will be governed by the load, by the demands on the whole power system. I believe there are people here from the Corps that could give you somewhat better information than I. But our information is --

DR. CARVER: Well, I was thinking of any information, not just better information.

MR. TOWNE: Well, I say better information than I could give you.

MR. POSTON: Thank you, Mr. Towne. I would now like to read the conclusions of this report.

CONTINUED STATEMENT BY
RICHARD POSTON

MR. POSTON: Information recently collected by the Public Health Service dictates the following conclusions concerning interstate pollution of the Snake River at and below Lewiston, Idaho, and Clarkston, Washington:

1. Waste is discharged to the Snake River from several sources in the Lewiston-Clarkston area. The waste discharges from Idaho are: the partially treated municipal sewage from the City of Lewiston; the untreated industrial and sanitary wastes from Potlatch Forests, Inc., pulp and paper mill; and the untreated industrial wastes from Seabrook Farms Company pea and potato cannery. From Washington, the waste discharges are: the partially treated municipal

sewage from the Cities of Clarkston and Asotin and the untreated meat packing wastes from Bristol Packing Company and Meats, Inc.

2. The significance of bacterial pollution existing in the Snake River in and below the Lewiston-Clarkston area cannot be evaluated on the basis of presently available information. Further studies are needed to make this possible.

3. The Snake River waters in Washington carry high loads of suspended solids material, primarily wood fiber, and support several areas of sludge deposits. These conditions result from the wood fibers entrained in the wastes from Potlatch Forests, Inc., pulp and paper mill in Lewiston, Idaho. The discharge of these highly colored, odorous, and turbid wastes results in damage to the aesthetic value of Snake River waters in Washington.

4. These interstate pollution problems are subject to abatement under the Federal Water Pollution Control Act. Pollution of the Snake River endangers the health or welfare of persons in a state other than that in which the discharges contributing to such pollution originate.

Thank you.

MR. STEIN: Mr. Harris, do you have any questions or comments?

MR. HARRIS: I don't believe I have any questions at this time.

MR. STEIN: Thank you. Dr. Carver?

DR. CARVER: No questions.

MR. STEIN: I have just two basic ones. Is Mr. Towne still here?

MR. TOWNE: Yes, sir.

MR. STEIN: Mr. Towne, we have had this problem in many areas of the country where impoundments have come in and changed the regimen of the stream. People who were on that stream bed suddenly found themselves faced with a different situation, and had to meet that at considerable expense.

As I understand this, this is a typical operation. What will happen? Are you going to slow down the flow and, in effect, have a large lake where the local people are going to use this for recreation, boating, fishing and swimming? The waste discharges there not only would potentially affect the more people using that, but they are not going to be carried away as rapidly or aerated as rapidly.

In order to obviate that, and I know that the Corps is doing the planning, you mentioned this relocation of outfalls.

Would it be feasible for consideration to be given to the problems faced by these people in a planning stage so that there aren't so many people faced with this afterwards, or would there be a more economical way of doing business?

MR. TOWNE: No. I think it should be considered in the planning stage, and I think that that is one of the reasons that the Corps wanted some of our answers here.

MR. STEIN: And this would include the industries and the municipalities affected here?

MR. TOWNE: Yes. I think there has even been some thought given from the standpoint of where these outfalls should be located, from the standpoint of backup into the Clearwater arm. There has been some thought given to the construction of a hydraulic model, and then releasing within the model the assimilated flow that there would be under actual conditions.

MR. STEIN: I recognize that you are a consultant to the Corps on these projects. But do you anticipate that in your planning you will get together with the State agencies, industries and municipalities concerned?

MR. TOWNE: Yes, sir.

DR. CARVER: I have a question, if I may, Mr. Stein. It seems to me that if this were to be done, and I certainly heartily approve of the basic idea here of planning ahead for this type of thing, that some information would be necessary in terms of stream flows after the impoundment.

I want to make a particular point here, Mr. Stein, that as I understand this, this impoundment is not going to be a stable impoundment at a certain level. It will fluctuate rather materially, will it not?

MR. TOWNE: I think here again, the Corps can speak with better authority. It is our understanding, in our conferences with them, that their plan is to hold the level here at Lewiston-Clarkston within a fluctuation of roughly not more than three feet.

DR. CARVER: Three feet is a substantial variation. It may make a sizable tide. But my question is this: To your knowledge, is the Corps in the process, or have they considered the conducting of model studies on this situation for this particular area?

MR. TOWNE: This has been discussed, and I think it will be a factor that will come up when our report is presented.

DR. CARVER: Well, my question was, are they making such studies now?

MR. TOWNE: I don't think they are making them now.

MR. STEIN: I have one other question. This probably should be directed to Mr. Poston. This refers to

Table 1. I wonder if we could have that board turned around again?

There was one part of the report that puzzled me. Where we came to the Potlatch B.O.D. loading, you came up to a population of 299,000 population equivalent, which is 94 percent of the total.

I could see where you may have taken a couple of small samples for the ones of 2,000 and 1,000, and so forth. Why is it you just took one sample for Potlatch?

MR. POSTON: Well, this was a very difficult sample to obtain. As I said, we had to get out into the river, into the outflow sewer which merged, and reach up inside the pipe and collect a sample. The water conditions were somewhat hazardous, and we took merely the one sample.

MR. STEIN: Why did you go out there? Isn't it unusual to take a sample out there? Why didn't you get in on the ground, or a little closer, and take the sample?

MR. POSTON: Well, at one time, when this survey started, we had the cooperation of the industry. We were operating at a more convenient location within their grounds.

When they learned of the enforcement activity, we were ordered off the plant property, so we were unable to any longer continue with our planning and collect samples at the plant itself.

MR. STEIN: You mean they wouldn't let you on the property?

MR. POSTON: That is correct.

MR. STEIN: Did they tell you this directly?

MR. POSTON: They did, yes.

MR. STEIN: Did they tell it to you or someone else?

MR. POSTON: They told it to someone on the staff.

MR. STEIN: Who?

MR. POSTON: Mr. Clark was the officer that was running the survey. He called in and notified us that he was denied access to the plant property.

Mr. Towne then made a trip and discussed it with the officials of the company. They said, "Yes," this was their position, that they were starting --

MR. STEIN: But you didn't discuss it before Mr. Towne discussed it.

I wonder if I could ask you, Mr. Towne, rather than get this second-hand, if you discussed this?

MR. TOWNE: When we initiated this study, we went with the State. Our representative, the Project Engineer, went with the State to the industry.

We were quite clear in making it understood that this was a technical study, that it was not an enforcement action, that we wanted samples of the plant effluents, not so much to measure the load going to the stream, but to use this as a laboratory instrument in determining the deoxygenation and waste assimilative capacity of the stream.

If we have the load and measure the effects in the stream, then we get this rate of decay, in which are these constants that I was trying to explain, and I guess I inadequately did so to the Doctor.

We were just through the first week of this study when we were advised that the Secretary was calling a conference on the Snake River. Mr. Clark advised me that --

MR. STEIN: Who is Mr. Clark?

MR. TOWNE: Mr. Clark was the Public Health Officer in charge of the field activities of this survey. I don't know that he said we weren't permitted on the grounds, because I went out to the grounds, but he advised us that we were not to be permitted to take samples of the effluents.

MR. STEIN: Well, what did you do?

MR. TOWNE: Beg pardon?

MR. STEIN: What did you do then?

MR. TOWNE: I felt that inasmuch as we had told the industry that this was not an enforcement action, I felt obligated to then advise the industry that the data we would collect undoubtedly was public information and would be available in the enforcement action.

MR. STEIN: What did the industry tell you?

MR. TOWNE: They told me that they had been advised by the State Health Department, and they were in agreement, that we should not take effluent samples.

MR. STEIN: Would you care to say who you --

DR. CARVER: Wait a minute.

MR. STEIN: Just a moment, please. Would you care to say who you spoke to specifically in the industry?

MR. TOWNE: I think that Mr. Van't Hul told me that he had advised them.

MR. STEIN: But he is in the State Health Department.

MR. TOWNE: Yes.

MR. STEIN: He said he advised them not to let you take samples?

MR. TOWNE: That's right.

MR. STEIN: And he is a State employee. Did you confirm this with the industry man who told you you could not take samples?

MR. TOWNE: I think I talked to Mr. Hopkins.

MR. STEIN: And Mr. Hopkins told you that you couldn't take samples?

MR. TOWNE: That's right, sir.

DR. CARVER: Are you saying, sir, that an employee of the Idaho Department of Health told the plant people that you should not take samples any more?

MR. TOWNE: That is what he told me.

DR. CARVER: Mr. Van't Hul told you that?

MR. TOWNE: Yes.

DR. CARVER: And that, in turn, the plant followed in effect his instructions or his guidance in this matter?

MR. TOWNE: They may have had the same opinion, but I talked with Mr. Hopkins and Mr. McClaren.

DR. CARVER: That is a rather strange thing, for P.F.I. to take its orders from the State Health Department.

MR. TOWNE: Well, I thought it was rather odd. I tried to impress upon them that it didn't make any difference what the purpose of this was; that the technical findings would be the same.

I do feel that we have had inadequate data on which to make our best evaluation of the load versus the self-assimilative capacity within the stream. This is all that I --

MR. STEIN: May I make one comment?

I wish the parties here would comment on this, because just last week the Chief Counsel of the Subcommittee on Water and Power of the House Department Operations Committee consulted with us to develop new legislation in tightening up procedures of water pollution control.

They are proposing several bills for the Corps of Engineers and the Coast Guard to police all pollution acts, and so forth.

They asked us about a procedure which has come up time and time again, whether we required subpoena power or wanted a legal right to enter the properties of industries and municipalities. I indicated to them that we never had a problem, although we felt within this enforcement operation there were thousands of industries and cities.

As a particular example, I indicated our relations with the pulp and paper industry and with the American Pulp and Paper Association, because never have we had any problem with the industries.

We have never sought this kind of authority. I know that the Government Operations Committee is looking at this very carefully, and I know they look at our proceedings very carefully.

I hope we might get some comment.

DR. CARVER: Well, I would like to make this comment:

I would hope that this record would be looked at very carefully from a legal standpoint, and I urge the Chairman, who I know to be an attorney, to consider this particular point.

It appears to me that what we have up to this point is this statement by Mr. Towne which, in effect, amounts to hearsay. I gather he has no record, nothing in writing on this particular matter.

MR. STEIN: I don't know that writing necessarily comes within the hearsay rule.

I understand Mr. Towne -- and this was reported for himself -- consulted with the State employee who was alleged to have made the statement. He said "Yes," he did it. He consulted with representatives here at Potlatch, and the Potlatch men confirmed it to him.

DR. CARVER: At no time, to my knowledge, did this matter come up, nor did Mr. Towne make any attempt -- I don't know whether he did, but at least I have no knowledge of the fact that you had even attempted to contact anyone higher in the State Health Department than Mr. Van't Hul on this particular point. Is that correct?

MR. TOWNE: I contacted Mr. Anderson.

DR. CARVER: What did Mr. Anderson say?

MR. TOWNE: He seemed to concur in the position.

DR. CARVER: Seemed to concur?

MR. TOWNE: I would say he did concur in the position.

DR. CARVER: Now, wait a minute. This position had to do with whether or not you could get in the plant. Did he concur also in the point that the Department was recommending or urging P.F.I. to take this position?

MR. TOWNE: That was my interpretation, sir.

DR. CARVER: Did you make any attempt to contact my office?

MR. TOWNE: I did not. By that time, the study was over. I felt that in justice to the industries, since we had approached them on this being a non-enforcement action, that at that point it made no difference whether this statement had or had not been made by the State. I felt that it was their position that they felt it desirable that we not take samples.

DR. CARVER: Did you make any contact higher in the echelons of Potlatch Forests than Mr. Hopkins?

MR. TOWNE: Mr. Hopkins and Mr. McClaren.

DR. CARVER: You did not talk to the president?

MR. TOWNE: No.

DR. CARVER: Why not?

MR. TOWNE: I felt that they were representing the company.

MR. POSTON: I might add, Mr. Chairman, that I was approached by Mr. Van't Hul a week ago in Seattle, and he told me that he was the one responsible for our being on the grounds to collect this highly desirable sample. So I can at least clarify that much of Mr. Towne's testimony.

MR. STEIN: By the way, Dr. Carver, I didn't know about this either until I came out here. But I can again understand in our relationships, that when a man goes up the line, there comes a point when you stop and really don't go to the boss.

DR. CARVER: I really don't understand that at all, and I object to the whole notion. I think that this might very well be considered an expression of the attitude on the part of the Public Health Service that the entire study was done in a rather superficial fashion.

MR. STEIN: Well, I would doubt that. I can assure you, Dr. Carver, if I had known of this I would have called you up.

I think we have to move on from here. I don't think the question is who said what or what was done.

DR. CARVER: Incidentally, did Mr. --

MR. STEIN: Pardon me. If you don't mind, just let me finish my statement.

I think the notion is that we have to go on from here. This information is important, it seems to me, and we should get samples of something allegedly contributing some 94 percent of B.O.D. loading. It seems to me that arrangements should be made to get that sample at an appropriate point, and I am sure it could be done.

DR. CARVER: I am sure it can.

MR. STEIN: I will say this: The pulp and paper industry is a highly competitive industry, which I have always found to have excellent ethical standards, and which has not particularly had any Government subsidies.

We have found it very easy to work with them on a factual basis, even though we may have differed in philosophy or direction. We have never, to my experience, had any problem in getting data from any of the pulp and paper manufacturers.

This goes not only for the individual plants, but for the American Pulp and Paper Association. We never had such problems. This is what I want to make very, very clear.

I don't think the pulp and paper industry should stand second to anything in its record of cooperation with State and Federal agencies.

DR. CARVER: Mr. Stein, would you include in your remarks your relations with State health departments as well?

MR. STEIN: Yes. I will even explain this, and say State water pollution control agencies, because in this connection today we are split about fifty-fifty. Half a dozen are in the Health Department and half are not, and the Washington agency is not within the Health Department. This is surprising.

DR. CARVER: That surprises me, too.

I simply want to say this: If the facts are as Mr. Towne alleged them to be, first of all, I am completely appalled that an employee of the Department would make any such statement, and, secondly, for the record, I would like to say that if he did so, he certainly exceeded his authority by "quite a 'fur' piece."

MR. STEIN: We have discussed this with Mr. Harris. We are going to go on to the Washington and Idaho statements, but let's have about a ten or twelve minute recess for a stretch.

(A short recess was taken.)

MR. STEIN: May we reconvene?

I think after a discussion with the conferee, Mr. Towne has one brief statement he would like to make and add to the record at this point. Mr. Towne.

MR. TOWNE: Mr. Stein, in clarifying the point of the previous discussion, I think there was one point I failed to state.

That is, when Mr. Van't Hul and I went out to the plant to talk to Mr. Hopkins and Mr. McClaren, he did recommend then, and they agreed, that we be permitted in the plant to introduce dye for our diffusion study.

I would like to say too, and I think I corrected this at the beginning, that we weren't ordered off the property. We were advised that we could not collect samples of the effluents on the property.

Thank you.

MR. STEIN: Thank you.

Mr. Poston, do you have any other representatives of the Federal agencies?

MR. POSTON: I asked the Federal members of the Columbia Basin Inter-Agency Committee to come to this meeting, and offered them an opportunity to be heard.

We have with us today Dr. J. T. Barnaby, Chief of the Division of Fisheries, Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service, of Portland, Oregon. Dr. Barnaby has a statement which he wishes to introduce into the record.

STATEMENT OF DR. J. T. BARNABY, CHIEF, DIVISION OF FISHERIES, BUREAU OF SPORT FISHERIES AND WILDLIFE, U. S. FISH AND WILDLIFE SERVICE, PORTLAND, OREGON

DR. BARNABY: Ladies and Gentlemen:

I am J. T. Barnaby of the Bureau of Sport Fisheries and Wildlife. I am here to present a statement on behalf of the Bureau of Sport Fisheries and Wildlife, and the Bureau of Commercial Fisheries, of the United States Fish and Wildlife Service.

The Fish and Wildlife Service is concerned about the conservation and development of the salmon and steelhead of the Columbia River basin. The abundance level of these valuable resources has been seriously reduced as a result of a lack of adequate protection in the past, particularly the loss of habitat and the deterioration of water quality. Extreme effort is being made to preserve the remaining habitat that is available for production of these fish. The Snake River basin contains the largest production area that remains relatively undisturbed.

Approximately three-fourths of the spring chinook salmon and over half of all salmon and steelhead that pass

McNary Dam come from the Snake River. The spring chinook are the most highly prized of salmon and likewise the most difficult to preserve because of their delicate requirements of clear, cool water for their early habitat. Most of these fish come from the Salmon River which is being considered for dedication to the production of anadromous fish with the exclusion of all high dams.

The Federal Government has invested over $18 millio for the preservation of anadromous fish in the Snake River. Private power companies have also invested $10 million for this purpose. In addition, foreseeable plans for dams in the Snake River would increase the investment for salmon and steelhead by some $75 million more.

The Bureau of Commercial Fisheries is presently cooperating with the State of Idaho in the development of the Clearwater River system, with a view towards enhancing the runs of fish. Spring chinook salmon have not utilized this stream for several decades. In the last few years, intensive effort has been directed towards the rehabilitation of this run of fish. Harpster Dam of the Washington Water Power Company was removed during 1963 to allow full passage of migrating fish up the South Fork of the Clearwater. The fish facilities at Lewiston Dam are currently being reconstructed to allow free passage of chinook salmon

J. T. Barnaby

to the Clearwater system. This is being done cooperatively by Washington Water Power Company, Idaho Fish and Game Department, and the Bureau of Commercial Fisheries.

The Bureau of Sport Fisheries and Wildlife is studying the suitability of a proposed hatchery site on Clear Creek near the mouth of the Middle Fork of the Clearwater and plans to construct a hatchery in the area that would be devoted to the rearing of salmon.

The rehabilitation of the Clearwater River has included the transplantation of spring chinook salmon from the Salmon River and from the adult run of fish from Bonneville Dam. Fall chinook salmon have been transferred experimentally from Bonneville. About six million eggs have been planted in the Clearwater System during the past four years.

These expenditures and efforts to maintain and enhance the salmon and steelhead runs of the Snake River and its tributaries are fully justified by the commercial and recreational values of these anadromous fish. Salmon and steelhead are of vital importance to the well-being of the local economy as well as being of importance from the regional and national standpoint.

Water pollution in the Clearwater or Snake Rivers in the Lewiston area could cause irreparable damage to the fish runs that migrate through this area to reach their spawning grounds. Although there have been few reports of dead fish in this area, investigations indicate pollution to such an extent that there is serious concern about the future.

Undesirable growths and deposits in the Snake River below Lewiston are a nuisance and a detriment to sport fishing and recreation. These undesirable conditions are objectionable and should be eliminated.

Of great concern is the accumulation of waste and decomposition products in the impoundment that would be created by Lower Granite Dam. A study by the Public Health Service of expected conditions indicates the oxygen content could drop to 5 ppm. This is an unnatural condition for migrating salmon and steelhead and could affect their normal migration habits. It would also affect the downstream migration of fingerlings and would detract from any value this impoundment might have as a rearing area for young fish.

In brief, the Fish and Wildlife Service wishes to emphasize the importance of the Snake River and its tributaries as a production area for anadromous fish, and to point out that deterioration in water quality is extremely detrimental to the continuance of these valuable natural resources.

The Fish and Wildlife Service firmly believes that the maintenance of clean waters in the lakes, streams, and rivers of the nation is in the public interest, and recommends better control of all effluents into the Snake River, especially in the Lewiston-Clarkston area.

Thank you, Mr. Chairman.

MR. STEIN: Tnank you for a very excellent statement.

Are there any comments? Mr. Harris?

MR. HARRIS: No, I have no comments.

MR. POSTON: I have no comments.

MR. STEIN: Thank you very much.

MR. POSTON: Also in the audience we have Mr. Arthur H. Arp, a fishery biologist, from Boise, Idaho.

I wonder if Mr. Arp has a statement he would like to present?

MR. ARP: No, sir, I have no statement.

MR. POSTON: Also, from the Department of Interior, we have Maurice H. Lundy, Bureau of Outdoor Recreation.

Mr. Lundy, do you have a statement that you would like to present?

MR. LUNDY: No, sir, we do not have a statement to present at this time. We appreciate the opportunity to make a statement.

MR. POSTON: We also have, from the Department of Interior, James D. Ellingboe, Chief, Hydrology Division, of Spokane.

Mr. Ellingboe, do you have a statement you would like to present?

MR. ELLINGBOE: No, sir, I have no statement to make at this point.

MR. POSTON: From the Corps of Engineers, we have David M. Rockwood, Hydraulic Engineer, from Portland.

Mr. Rockwood, do you care to make a statement?

MR. ROCKWOOD: Sir, I have no formal statement, but I would like to comment briefly on some things that were said by Mr. Towne. Would it be appropriate to do so now?

MR. POSTON: Very appropriate.

Would you step up to the lectern, please?

STATEMENT OF DAVID M. ROCKWOOD, NORTH PACIFIC DIVISION OFFICE, CORPS OF ENGINEERS, PORTLAND, OREGON

MR. ROCKWOOD: My name is David M. Rockwood. I am a representative of the North Pacific Division Office of the Corps of Engineers, Portland, Oregon, and I am the Corps of Engineers' representative on the Water Supply and Pollution Subcommittee of the CBIAC.

In reference to Mr. Towne's presentation of a few minutes ago --

MR. STEIN: Mr. Rockwood, I know we bureaucrats spout these initials by the yard and know what they mean. For the record, could you identify that?

MR. ROCKWOOD: Surely. The "CBIAC" refers to the Columbia Basin Inter-Agency Committee, which is composed of representatives of the Federal and State agencies in the Pacific Northwest dealing with the Columbia River Basin.

The statement by Mr. Towne was one regarding the Corps of Engineers' responsibility in the operation of its projects.

First of all, I want to point out that the Corps is, of course, directly responsible for the operation of all its projects, one of which will be the Lower Granite Dam.

So far as work now being carried on, studies are of course being made at the present time as to the methods of operation of Lower Granite Dam. These of course are preliminary in nature and are being developed as time goes along.

I would like to point out that they are expensive. They involve studies, for instance, of power operations of the entire Columbia River system. In addition, studies are being made by our Walla Walla District Office in regard to the fluctuations that we developed in the Lower Granite Pool.

Also, in addition to this, the studies will indicate that the conditions of stream flow, of course, depend upon the storages upstream, and that, in turn, will vary with time.

So, there is no one answer to a complicated problem of this type. However, before the Lower Granite project is in operation, there will be a reservoir regulation manual, and in this reservoir regulation manual there will be defined in exact terms the actual regulations that will be encompassed at Lower Granite Dam.

I think that would summarize my statement at this time.

Thank you.

MR. STEIN: Does anyone have any comments or questions?

DR. CARVER: I have a question, sir.

You have indicated that this manual will be prepared before the dam actually goes into operation; is that right?

MR. ROCKWOOD: That's right, sir.

DR. CARVER: Do you have any idea at this time how long before that dam goes into effect such a manual would be available?

MR. ROCKWOOD: Well, all I can say is, from past experience with Corps projects, usually it is roughly within the year before operation.

DR. CARVER: When is the dam expected to go into operation?

MR. ROCKWOOD: I believe it was stated in this meeting that it was 1970.

DR. CARVER: So this might be available in 1969?

MR. ROCKWOOD: A formal reservoir regulation manual.

DR. CARVER: Yes, sir.

MR. STEIN: By the way, you don't have the appropriations for that dam yet, do you?

MR. ROCKWOOD: I am not in a position to judge that. We have only planning monies, as far as I know.

MR. STEIN: Just planning monies?

MR. ROCKWOOD: Yes.

MR. STEIN: I just want to clarify this for the group. The point is, in very many of these projects, obviously the money has to come forth before you can begin constructing, and no one can set a date, as a Federal person, without the Congress having the last say. They have to do this before.

MR. ROCKWOOD: That is correct.

MR. POSTON: Thank you very much, Mr. Rockwood.

We also have Melvin J. Ord, Corps of Engineers, Air Base, Walla Walla, Washington.

I wonder if Mr. Ord has a statement to make at this time?

MR. ORD: I concur in the statements that Mr. Rockwood made.

MR. POSTON: Thank you. Are there any other Federal agencies here that wish to make a statement?

(There was no response.)

MR. POSTON: Mr. Chairman, I believe that concludes the presentation of the Federal agencies.

MR. STEIN: Thank you, Mr. Poston.

We will now call on Mr. Roy Harris of the State of Washington. Mr. Harris.

STATEMENT OF ROY M. HARRIS, CONFEREE
AND DIRECTOR, WASHINGTON STATE POLLUTION
CONTROL COMMISSION, OLYMPIA, WASHINGTON

MR. HARRIS: Mr. Stein, I wish to preface my statement by explaining that some of the remarks contained are taken from a report on the Lower Snake River, which will be introduced for the record of this conference.

This report, which is some thirty-odd pages, I will not read at this time.

MR. STEIN: Without objection, that report will appear in the record, as if read.

MR. HARRIS: The report is entitled "Preliminary Findings of the Joint Study Program of Water Quality Conditions on the Lower Snake River," January, 1944, by the State of Idaho Department of Health, and the State of Washington Pollution Control Commission.

INTRODUCTION

The imminent construction of impoundments along the Lower Snake River have increased the concern for future water quality maintenance. When completed, a series of four dams will alter the character of the river from a flowing stream to that of slack-water from the mouth of the river to the Lewiston-Clarkston Area, 140 miles upstream. Not only will the total assimilative capacity of the river for waste loadings be diminished but localized problems resulting from decreased immediate dilution of the treated wastes will have to be solved.

In addition to these anticipated problems of the near future, existing water quality is becoming marginal in an aesthetic sense to the increasing numbers of recreational water users, and in a physical sense to downstream irrigators. For these reasons and the need for wastewater treatment improvements in the Lewiston-Clarkston Area, a program for the joint study of existing water quality conditions and future management needs has been undertaken by the States of Idaho and Washington. The first phase of the study program has been completed and the preliminary findings are presented in this report.

JOINT STUDY PROGRAM

Objectives

In recognition of anticipated future problems of water quality maintenance attending the conversion of the Lower Snake River into a series of slack-water pools, and to clear up the wastewater treatment deficiencies which presently exist, planning meetings were held at Lewiston by the Idaho Department of Health and the Washington Pollution Control Commission during the winter of 1962-1963. In these meetings the mutual desire for coordinated water quality management found expression in the following program objectives:

1. To initiate an immediate program for the correction of existing problems associated with food processing and wood pulping wastes.

2. To inventory existing and potential water uses and waste sources.

3. To establish common water quality objectives.

4. To determine the hydrological, physical, chemical and biological characteristics of the common receiving waters.

5. To gather basic data for the prediction of future wastewater treatment requirements necessary to the prevention of water quality impairment.

6. To determine future wastewater treatment requirements necessitated by authorized impoundments.

7. To delineate water quality problems and to establish programs for corrective measures.

8. To establish a water quality monitoring prog-

ram to serve as a basis for evaluating present and future problems.

Water Quality Survey Scope

Reconnaissance work indicated that to adequately measure the effect of the Lewiston-Clarkston Area on the chemical and biological water quality, a long section of the river would have to be investigated. The section selected for study extends from the Ice Harbor Dam at river-mile 10 to above the confluence with the Salmon River nearly 180 miles upstream. The Salmon River is the last major tributary for another 160 river miles. A total of 14 sampling stations were located along the study section including the mouths of the three major tributaries.

Survey Sampling Stations

Following are descriptions of the water quality and biological sampling stations used in this study. The water sampling stations are noted on the study area map in the back of this report.

Water Quality Stations

Station	Stream	River-mile and Location	
1	Snake	192 est.	Above the Salmon River
2	Salmon	53 est.	At White Bird, Idaho
3	Snake	178 est.	Above Grand Ronde River
4	Grand Ronde		Near Confluence

Station	Stream	River-Mile and Location	
5	Snake	168 est.	Below Grande Ronde
6	Snake	143.6	Below Asotin, Washington
7	Snake	139.6	At Interstate Bridge
8	Snake	135.1	Near Clarkston Golf Course
9	Clearwater	-	At mouth
10	Clearwater	12 est.	At Spalding, Idaho
11	Snake	124 est.	10 miles above Wawawai, Wash.
12	Snake	83.1	At Central Ferry, Wash.
13	Snake	49.4	At Ayer, Washington
14	Snake	10.0	At Ice Harbor Dam

Biological Stations

Station	Stream	River-mile and Location	
1	Clearwater	1	Below highway bridge
2 & 3	Snake	198 est.	at Pittsburg Landing, Idaho
4	Salmon	36 est.	Below White Bird Creek
5	Clearwater	12 est.	At Spalding, Idaho
6	Grande Ronde	-	Near confluence
7	Snake	146.5	Above Asotin, Washington
8	Snake	147 est.	Above Asotin, Washington
9 & 10	Snake	130 est.	Below Clarkston, Washington

Methods and Progress

Existing water quality monitoring stations are maintained at four locations along the Lower Snake River as parts of both state and federal basic data collection networks. To augment these data, the special surveys of this joint study were designed for conduct during each of three significant hydraulic conditions of the river. The first of these is the July-August period representing conditions of low flow and warm water temperatures. The second phase is for the springtime condition following a period of low flow and prior to the flushing action of flood stage. This second phase should most closely resemble conditions of water quality that might be expected after the stream is converted to slack-water. The third phase is to depict conditions during the maximum runoff of May and June.

In addition to the normal water quality parameters special attention is being given to the bottom organisms. Living in the stream, the aquatic organisms tend to integrate water quality conditions that have been in effect over a period of time and are less susceptible than water samples to the indication of atypical conditions.

The unique feature of the biological portion of the survey is the employment of identical media for organism growth at each of the sampling stations. This is accomplished by setting wire cubes containing one cubic foot of selected gravel sizes and placing them in the stream, one at each station, for one month periods, after which they are retrieved and the organisms counted and identified.

The first of the three surveys was conducted during late July and early August, 1963, and the second and third phases are scheduled for the spring and May-June, 1964 respectively.

AREA DESCRIPTION, POPULATION & ECONOMY

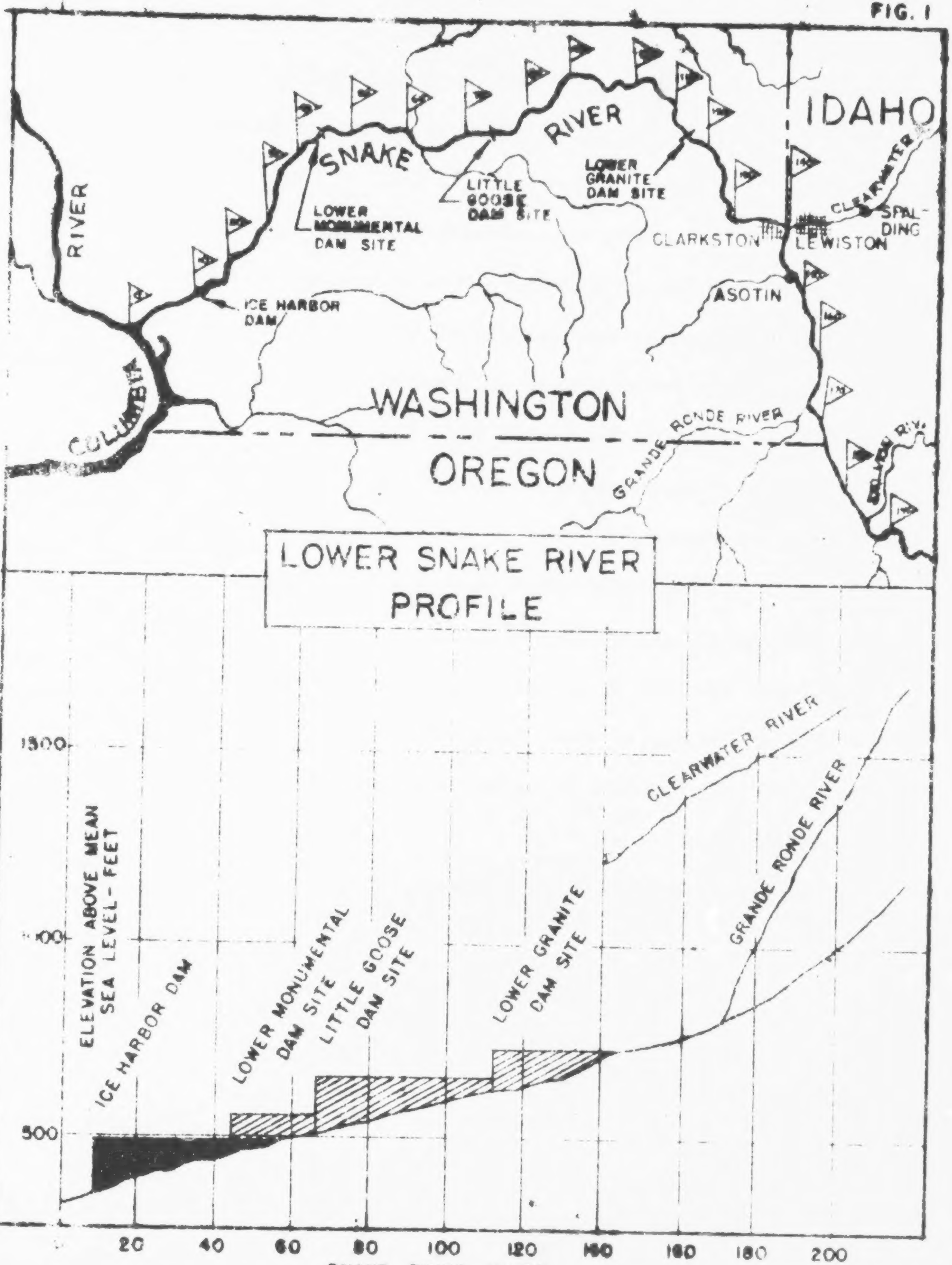
The lower 190 miles of the Snake River below its confluence with the Salmon River are defined as the Lower Snake River for purposes of this study. Both the Salmon and the Snake Rivers lie in deep narrow canyons cut through the surrounding high plateau country. From this confluence, the Snake River continues northward down a series of rapids past the mouth of the Grande Ronde River at river-mile 169. The river and canyon character continue the same to river-mile 151 where the canyon widens slightly. From this point downstream to its junction with the Clearwater River in the Lewiston-Clarkston Area, the canyon widens into a deep valley. At its confluence with the Clearwater River, the Snake River changes its northerly course along the Idaho-Washington border and flows to the west through the narrowing valley. At river-mile 130, the Snake River turns to the north and again enters a narrow and deep canyon cut through the surrounding plateau approximately 1,000 feet above the canyon floor. The river then follows a semicircular course to the Columbia River as the canyon walls gradually diminish in height.

Between Wawawai at river-mile 111 and Central Ferry at river-mile 83, occasional widening of the canyon bottom permits the cultivation of limited farm lands. Another small farming area is located at the mouth of the Tucannon River at river-mile 62. The rest of this stretch of river is characterized by a series of pools and rapids lined by narrow sandy beaches and steep canyon walls.

The forests which dominate the high plateaus bordering the upper reaches of the study area give way to the rich "Palouse Country" wheat lands downstream from Lewiston and Clarkston. The wheat lands, in turn, merge into the semi-arid grazing and sagebrush lands near the river mouth.

(Figure 1 is as follows:)

FIG. 1


IDAHO
SNAKE
RIVER
RIVER
COLUMBIA
LOWER MONUMENTAL DAM SITE
LITTLE GOOSE DAM SITE
LOWER GRANITE DAM SITE
CLEARWATER
SPALDING
CLARKSTON
LEWISTON
ASOTIN
ICE HARBOR DAM
WASHINGTON
OREGON
GRANDE RONDE RIVER
LOWER SNAKE RIVER PROFILE
1500
1000
500
ELEVATION ABOVE MEAN SEA LEVEL - FEET
ICE HARBOR DAM
LOWER MONUMENTAL DAM SITE
LITTLE GOOSE DAM SITE
LOWER GRANITE DAM SITE
CLEARWATER RIVER
GRANDE RONDE RIVER
0
20
40
60
80
100
120
140
160
180
200
SNAKE RIVER MILES

R. M. Harris

Population

The area outside the urban centers of Lewiston, Clarkston, Asotin and Spalding is very sparsely populated. Of the 31,000 or so inhabitants of the Lewiston-Clarkston Metropolitan Area, 18,000 reside in Lewiston and Lewiston Orchards, 6,220 reside in Clarkston and the populations of Asotin and Spalding are 745 and 200 respectively.

Economy

The economy of the area is supported primarily by the forest products and food processing industries with agricultural production playing a limited role. Potlatch Forests, Inc., the largest employer, produces lumber, wood pulp, paper and fuel products. The Smith Frozen Foods Company processes peas and the Seabrook Farms Company processes both peas and potatoes. The two meat packing plants, Bristol Packing Company and Meats, Inc., complete the industrial community.

WATER USES

To a greater or lesser degree, all water uses are presently being made of the Snake and Clearwater Rivers in the Lewiston-Clarkston vicinity.

Water Supply

The City of Lewiston derives much of its water supply from the Clearwater River. The City of Clarkston's auxiliary water supply is obtained from a pumping station located on the Snake River.

Recreation

Water recreational pursuits of swimming, boating and skiing are very popular during the warm summer months along the municipal beaches and along the sandy shores in the canyon downstream.

Fishery

The Snake River system supports an important fishery in both the anadromous and resident species. The Clearwater, Grande Ronde and Salmon Rivers are particularly noteworthy for their excellent spawning grounds for migratory fish. The runs of Steelhead are famous. Up to 22,000 fish are caught by sportsmen during the 4-month season. Sturgeon and Bass are important resident species.

Irrigation

The irrigation usage of the Lower Snake River waters is presently limited to small acreages adjacent to the River. Considerable acreages near the mouth of the river now involving uneconomical lifts are contained in the proposed Eureka Flats Project to be supplied by the reduced pumping lifts possible due to river impoundments.

Power

The small power drop near the mouth of the

Clearwater River and the 230,000 kilowatt facility at the Ice Harbor Dam represent only the beginning of the power development under construction on the Lower Snake River.

Navigation

Navigation on the river system is presently limited to log transport, small boats and a short season for barge traffic to and from the Columbia River. The dams now under construction will provide slack-water navigation from the ocean to Lewiston with minimum depths of 18 feet for year round barge traffic.

WATER QUALITY INFLUENCES

In addition to the wastewater discharges in the Lewiston-Clarkston Area, the Lower Snake River water quality is subject to the influences of impoundment, regulation and residual effects from upstream origination combined with those from natural causes.

Impoundments

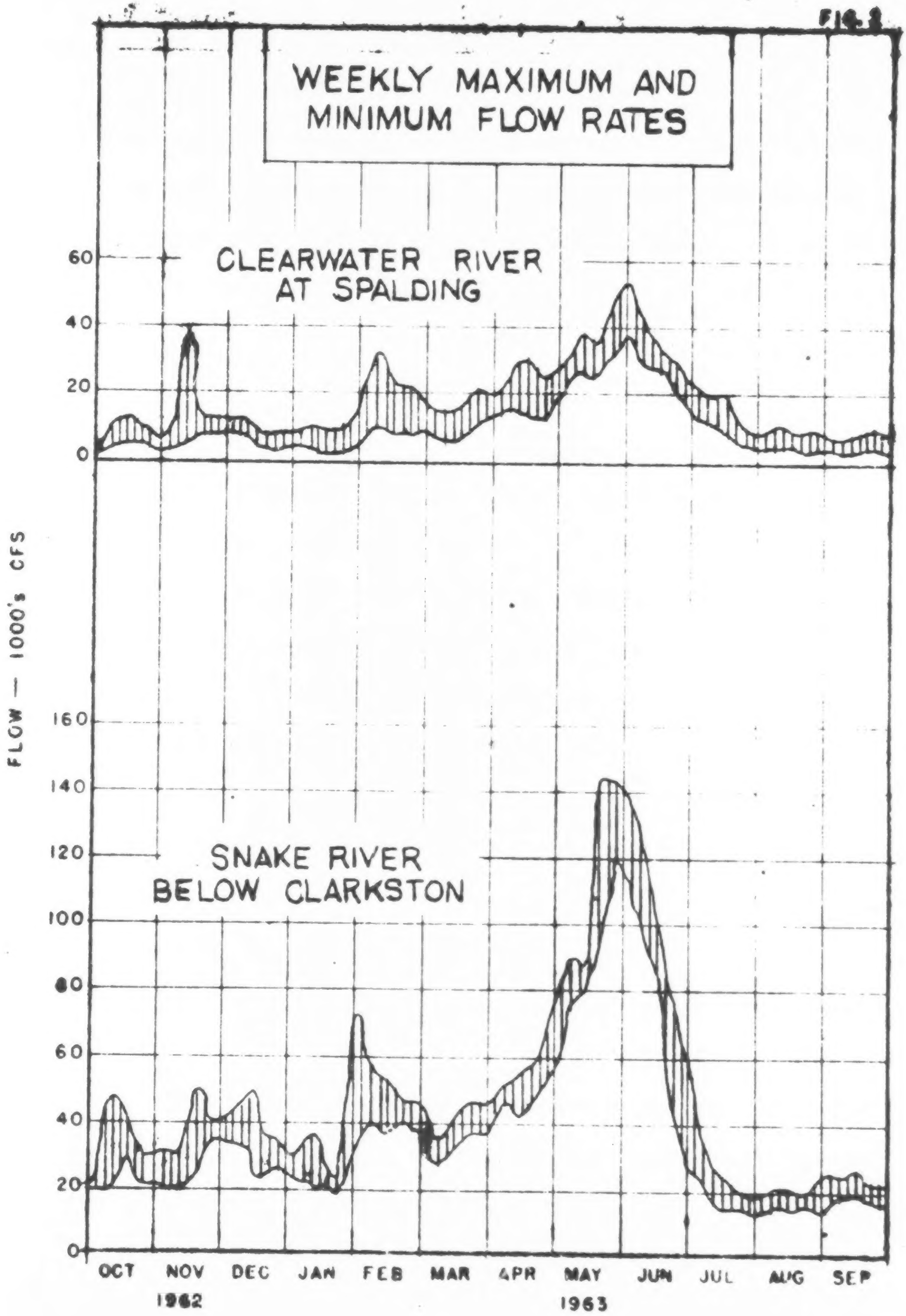
The principal influences of impoundment are generally adverse to water temperature and dissolved oxygen concentrations. The latter is primarily related to deep reservoirs where stratification prevents circulation from replenishing oxygen depletions resulting from the decomposition of natural or discharged organic matter. While the effect on downstream temperature is dependent on the characteristics of the reservoir,studies of existing reservoirs have indicated water temperature increases on the order of 1.85° F/Million acre-feet of storage, or on a surface area basis, of 0.88° F/10,000 acres of water surface. Predicted temperatures in the Lower Snake River on completion of the proposed dams are expected to average above 75° F. during the month of August.

Regulation

Severe regulation of river flows to meet diurnal power peaking demands enhances detrimental temperature increases, hinders recreational water-front development, and in the extreme case has caused the loss of aquatic organisms including incubating fish eggs. Both the Snake and the Clearwater Rivers are heavily regulated as is shown by their hydrographs in Figure 2.

(Figure 2 is as follows:)

FIG. 8


WEEKLY MAXIMUM AND MINIMUM FLOW RATES
CLEARWATER RIVER AT SPALDING
SNAKE RIVER BELOW CLARKSTON
FLOW — 1000's CFS
60
40
20
0
160
140
120
100
80
60
40
20
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
1962
1963

Below the diversion dam, near the mouth of the Clearwater River, very nearly the entire flow is frequently diverted during periods of low flow. More drastic regulation is anticipated in the future as nuclear power assumes the base load and hydro-electric projects are converted into peaking plants.

Natural Runoff & Upstream Residual Effects

These two influences are considered together in the assessment of water quality entering the study area. It is not known what their relative contributions are, but combined, their influence has a masking effect on the impact of the wastewater discharges in the Lewiston-Clarkston area.

Wastewater Discharges

The wastewater discharges originating in the Lewiston-Clarkston area are the only domestic or industrial discharges of significance in the lower 352 miles of the Snake River.

The sewered communities of Asotin, Clarkston and Lewiston provide modern sewage treatment for their domestic wastes. The unsewered community of Spalding relies on individual systems of septic tanks and drainfields for disposal of sanitary wastes. Under the present hydraulic conditions of the river, the existing sewage treatment plants are considered satisfactory.

R. M. Harris

Individual industrial waste discharges are made by the Bristol Packing Company, Meats, Inc., Seabrook Farms Company and Potlatch Forests, Inc. The wastes from Smith Frozen Foods Company are treated at the Lewiston sewage treatment plant.

Both the Bristol Packing Company and Meats, Inc. provide the equivalent of primary treatment for their wastewaters prior to discharge. Fine mesh screens and air-flotation units are employed for the removal of paunch manure and fats. Both companies installed blood cookers which were later abandoned as too troublesome and expensive to operate. Alternate methods involving lagoons for land disposal are being considered by the companies as a means of complete treatment for all of their wastewaters.

The Seabrook Farms Company lacks adequate treatment facilities. Immediate needs are fine screening and sanitary wastes separation for discharge to the municipal sewer.

Potlatch Forests, Inc. provides in-plant control to reduce product losses and has installed settling ponds for further solids removal. These facilities are not sufficient to prevent the undesirable losses of fibre and cooking liquors to the watercourse. Further corrections at this plant and the Seabrook Farms Company are recognized in the joint study objectives and have been the target of stepped-up negotiations by the Idaho Health Department.

Following in Table 1 is a summation of the wastewater sources in the Lewiston-Clarkston area.

Table 1

Wastewater Discharges - Lewiston-Clarkston-Asotin

	5-day Biochemical Oxygen Demand		
Municipal	Lbs/day	% of sub-total	% of total
Lewiston	950 (1)	49.5	1.09
Clarkston	620 (2)	32.3	0.71
Asotin	350 (3)	18.2	0.40
Sub-total	1,920	100	2.20
Industrial			
Potlatch Forests, Inc.	73,600 (4)	86.0	84.18
Seabrook Farms Co.	9,000 (5)	10.5	10.29
Bristol Packing Co.	1,670 (6)	1.9	1.91
Meats, Inc.	1,240 (6)	1.4	1.42
Sub-total	85,510	100.0	97.80
Total	87,430		100.00

(1) From sewage treatment plant records.

(2) 4-hour composite sample during maximum load period.

(3) 4-hour composite sample during maximum load period-value appears excessively high probably due to sharp

loading peak of 2 or 3 times 24-hour average.

(4) From monthly mill reports.

(5) Estimated from production.

(6) Estimated from grab sample analysis.

FUTURE WASTEWATER TREATMENT

As mentioned earlier, one of the major questions to be answered relates to how the proposed river changes will affect the existing facilities and what additional treatment will be required to maintain water quality. The answers to the latter are the object of the joint study. At this time, however, it does appear that the treatment will have to be up-graded from primary to intermediate or even secondary depending on the efficiencies that can be developed for effluent diffusion and immediate dilution.

The municipalities of Asotin and Clarkston have each retained consulting engineers to study the impact on their respective sewerage systems and to recommend necessary modifications. The Bristol Packing Company and Meats, Incorporated are considering lagooning methods to both upgrade their industrial waste treatment and to correct the present unsatisfactory practice of discharging blood to the waterway.

FIRST PHASE SURVEY RESULTS

As mentioned previously the first water quality survey phase of the three part investigation has been completed. The data obtained are presented in the tables that follow. While their full evaluation must await the data collection of the second and third phases, the findings are summarized below.

(The tables are as follows:)

FIG. 3

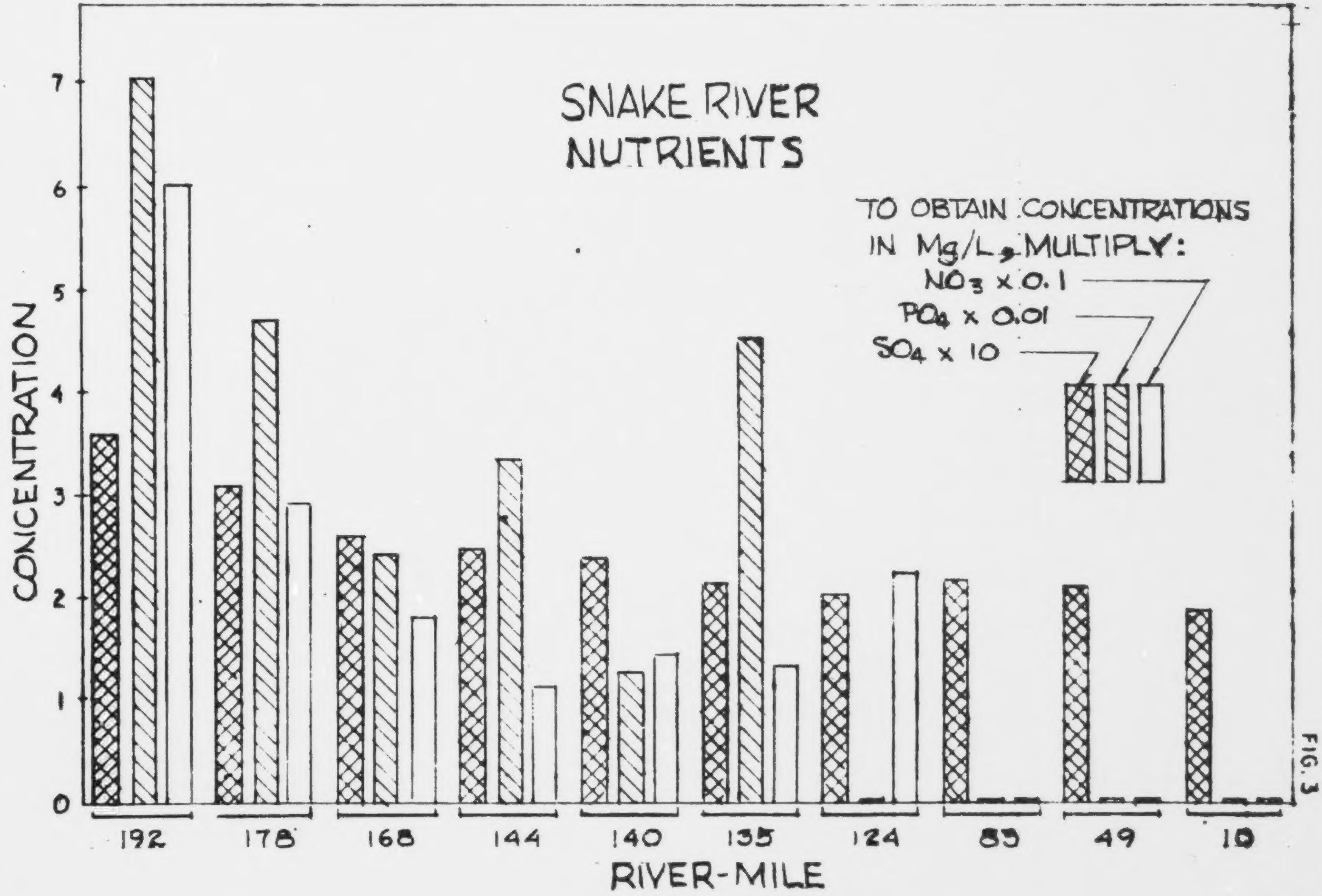

SNAKE RIVER NUTRIENTS
TO OBTAIN CONCENTRATIONS IN Mg/L, MULTIPLY:
NO3 x 0.1
PO4 x 0.01
SO4 x 10
CONCENTRATION
0
1
2
3
4
5
6
7
RIVER-MILE
192
178
168
144
140
135
124
85
49
10

TABLE 2

LOWER SNAKE RIVER WATER QUALITY, JULY 30-AUGUST 1, 1963

Station	1 Snake River Above Salmon	2 Salmon R. At White Bird	3 Snake Riv. Below Salmon	4 Grande Ronde Near Mouth	5 Snake Riv. Below Gr. Rd.	6 Snake Riv. Below Asotin	7 Snake R. At Interstate Bridge
River-mile	192	53	178	0	168	143.6	139.6
Date	7-30-63	7-30-63	7-30-63	7-30-63	7-30-63	7-30-63	7-31-63
Flow-cfs	11,810*	7,960	19,770*	748	20,520*	20,520	20,520
Time	11:35	11:30	11:30	11:20	10:15	9:00	9:00
Temp. °C.	20.5	19.6	20.5	20.4	20.6	20.2	19.9
pH	8.4	8.1	8.4	8.4	8.6	7.9	8.3
Turbidity	9	0	10	9	15	10	--
MPN/100 ml	21	49	8	15	49	11	94
Diss. Solids	260	110	260	170	210	230	240
D.O.	8.9	9.1	9.1	9.4	9.1	8.4	8.8
C.O.D.	14	11	13	13	10	36	16
B.O.D. 5-day	1.2	0.1	1.1	0.6	1.33	1.33	1.36
B.O.D. 20-day	--	-	-	-	2.45	3.05	2.40
Sulfate	35.95	0.99	30.51	0.22	25.78	24.35	23.85
Ortho PO_4	0.070	0.00	0.047	0.019	0.024	0.033	0.012
Total PO_4	1.80	0.95	1.95	0.30	1.35	1.20	1.25
Nitrate-N	0.60	0.00	0.29	0.01	0.18	0.11	0.14
Alkalinity	116	60	128	70	84	80	83
Calcium	26.3	18.5	24.0	20.1	23.1	21.6	23.4
Magnesium	20.6	13.6	16.5	12.9	15.8	13.4	14.9
Chloride	3	1	7	1	6	9	7
Sodium	24.2	8.5	28.4	9.6	10.5	10.6	18.9
Potassium	6.4	1.4	8.6	2.1	2.0	1.9	4.5
ABS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tannin-Lignin	0.4	0.3	0.5	0.4	0.5	0.3	0.3

TABLE 2 (Continued)

Station	8N Snake R. Below Clrkstn	8M Snake R. Below Clrkstn	8S Snake R. Below Clrkstn	9 Clearwater At Mouth	10 Clearwater At Spalding	11 Snake R. Above Wawawai
'River-mile	135.1	135.1	135.1	1	12	124
Date	7-31-63	7-31-63	7-31-63	7-31-63	7-31-63	8-1-63
Flow-cfs	24,000	24,000	24,000	4,580*	4,580	23,900
Time	--	--	--	09:15	--	--
Temp. °C.	20.4	20.2	20.1	20.8	20.9	--
pH	8.4	8.4	8.4	7.4	7.4	--
Turbidity	--	20	20	10	0	--
MPN/100 ml	800	800	1,300	4,900	130	--
Diss. Solids	--	220	230	< 75	< 75	170
D.O.	8.7	8.8	9.1	8.7	8.5	8.9
C.O.D.	--	13	--	15	12	12
B.O.D. 5-day	--	--	--	1.20	0.65	0.46
B.O.D. 20-day	--	--	--	1.53	1.03	1.04
Sulfate	--	--	--	--	0.15	20.03
Ortho PO_4	--	--	--	0.003	--	--
Total PO_4	--	1.15	1.40	0.25	0.20	0.11
Nitrate-N	--	--	--	0.03	0.07	0.22
Alkalinity	--	76	86	20	16	70
Calcium	--	19.5	25.9	5.6	4.4	14.4
Magnesium	--	12.5	17.3	3.8	2.7	4.3
Chloride	--	10	10	2	1	10
Sodium	--	15.6	16.6	1.6	1.4	16.7
Potassium	--	3.0	2.4	1.1	1.1	4.2
ASB	--	0.0	0.0	0.0	0.0	0.0
Tannin-Lignin	--	0.5	0.4	0.4	0.3	0.4

TABLE 2 (Continued)

Station	12 Snake River At Central Fy.	13 Snake River At Ayer	14 Snake River At Ice Harbor	8 Snake Riv. Composite Below Clarkston
River-mile	83.1	49.4	10.0	135.1
Date	8-1-63	8-1-63	8-1-63	
Flow-cfs	23,900	23,900*	23,900*	
Time	--	--	--	
Temp. °C.	--	--	--	
pH	--	--	--	
Turbidity	--	--	--	
MPN/100 ml	--	--	--	
Diss. Solids	190	180	160	
D.O.	9.0	9.0	9.6	
C.O.D.	16	50	9	
B.O.D. 5-day	1.47	0.98	0.67	1.85
B.O.D. 20-day	2.74	1.89	1.13	2.84
Sulfate	21.38	21.15	18.36	21.33
Ortho PO_4	0.004	--	--	0.045
Total PO_4	0.14	0.13	0.11	--
Nitrate-N	0.01	0.01	0.00	0.13
Alkalinity	78	74	76	
Calcium	16.8	16.8	16.8	
Magnesium	4.8	4.8	4.8	
Chloride	6	15	16	
Sodium	17.5	16.7	15.1	
Potassium	4.8	3.4	3.2	
ABS	0.0	0.0	0.0	
Tannin-Lignin	0.4	0.4	0.3	

TABLE 3

LOWER SNAKE RIVER WATER QUALITY, NOVEMBER 25, 1963**

Station	Snake River Above Asotin	Snake River At Interstate Bridge	Clearwater R. At Spalding	Clearwater R. At Mouth	Snake R. At Clrkstn G.C. South Side
River-mile	150	139.6	12	1	131.5
Flow-cfs	20,040	20,040	4,160	4,160*	20,040
Time	13:40	13:10	15:30	12:50	12:15
Temp. °C.	10	10	--	5	10
pH	8.1	8.1	--	6.7	7.9
Turbidity	0	5	--	--	9
MPN/100 ml	79	172	1,600	$<$ 2,000	330
Total Solids	280	264	26	56	--
Susp. Solids	10	9	6	6	--
D.O.	10.9	11.1	--	12.0	11.3
C.O.D.	12	10	7.	9	--
B.O.D. 5-day	1.4	1.6	0.9	1.1	--
Sulfate	59	60	1.8	4.2	--
Ortho PO_4	0.22	0.22	0.09	0.07	--
Nitrate-N	0.85	0.80	0.80	1.45	--
Alkalinity	130	134	20	22	--
Calcium	27.2	28.0	4.0	4.8	--
Magnesium	10.5	9.5	1.0	1.0	--
Chloride	21	19	3	3	--
Sodium	33	33	5	4	--
Hardness	110	108	14	16	--
Iron	0.02	0.02	0.11	0.13	--

TABLE 3 (Continued)

Station	Snake R. At Clrkstn G.C. Composite //	Snake R. At Clrkstn G.C. North Side	Snake R. Below Interstate Br.	Snake R. At Gage Station Midstream	Snake River Downstream
River-mile	131.5	131.5	137	132.5	128
Flow-cfs	20,040	20,040	20,040	20,040	20,040
Time	12:17	12:20	12:00	11:40	11:10
Temp. °C.	9.5	9	9	9	9
pH	--	7.8	7.9	7.9	7.8
Turbidity	--	10	15	15	15
MPN/100 ml	--	330	1,300	700	1,300
Total Solids	240	--	246	272	222
Susp. Solids	16	--	8	10	10
D.O.	--	11.4	11.3	11.3	11.1
C.O.D.	14	--	12	14	14
B.O.D. 5-day	1.4	--	1.6	1.4	1.7
Sulfate	53	--	55	54	58
Ortho PO_4	0.20	--	0.18	0.20	0.22
Nitrate-N	1.60	--	0.85	1.85	1.75
Alkalinity	116	--	118	126	116
Calcium	23.2	--	23.2	24.3	23.1
Magnesium	6.5	--	8.4	9.6	8.1
Chloride	19	--	19	23	18
Sodium	30	--	31	30	31
Hardness	84	--	92	101	90
Iron	0.04	--	0.04	0.04	0.04

Manganese was undetectable at all stations
Ammonia as N was less than 0.1 ppm. at all stations

**State of Idaho Department of Health Follow-up Survey
* Estimated
// Composite of north and south side samples

R. M. Harris

Dissolved Oxygen

The minimum percentage of saturation was 92% corresponding to 8.4 mg/l at station located at river-mile 143.6 and between the Town of Asotin and the City of Clarkston.

Nutrients

Descending concentrations are noted from the maximum values of 35.9 mg/l Sulfate, 0.070 mg/l Ortho Phosphate, and 0.60 mg/l Nitrate-Nitrogen at river-mile 192 above the Salmon River, to the minimum concentrations of 18.4 mg/l Sulfate, and nonmeasurable amounts of Ortho Phosphate and Nitrate-Nitrogen at river-mile 10. The nutrient values are shown graphically in Figure 3.

Biochemical Oxygen Demand

The data indicate a general pattern of decreasing concentrations with progression downstream. An exception is an increase of 0.5 mg/l (1.3 to 1.8 mg/l) immediately downstream from the Lewiston-Clarkston Area.

Biological

The greatest volume of organisms was recovered from the stations at river-mile 198, approximately 12 miles above the confluence with the Salmon River. The percentage of abundance of trichopterans (Hydropsychidae) decreased between the upstream stations and the downstream station at river-mile 130, about 10 miles downstream from Clarkston. In this same 68-mile reach of river the percentage abundance of ephemeropterans (Heptageniidae) increased as did the number of families present. The greatest biological difference occurred on the Clearwater River between Spalding and the confluence with the Snake River, 12 miles downstream. The number of organisms obtained from the mouth of the Clearwater River was very much less than the number obtained at Spalding.

SUMMARY OF BOTTOM FAUNA

Approximate Percentage of Abundance

Station	1*	2	3	4**	5	6	7	8	9	10
Trichoptera	X	90	90	X	2	60	60	80	60	20
Ephemeroptera	X	7	5	X	20	20	10	10	30	20
Diptera	X	3	5	X	40	15	30	10	10	60
Plecoptera	X	0	0	-	35	5	0	0	0	0
Insect Families Present	6	5	5	9	6	10	6	6	9	10

* Abundance estimates were not made because only a few organisms were found.

"X" indicates the families present.

** Screen sample.

R. M. Harris

BIOLOGICAL OBSERVATIONS

Station 1

Description: In the Clearwater River approximately 1-mile above its confluence with the Snake River, approximately 300 yards below the highway bridge on the north side of the river.

Remarks: The cage was placed in the Clearwater River on July 15, 1963 and removed on August 19, 1963. Percentage estimates were not made due to the fact that only a few organisms were found. There was considerable silt and debris contained in the sample. The cage was located in a riffle in relatively fast water. The consistency of the bottom varied from gravel to heavy rubble.

Station 2

Description: In the Snake River at Pittsburg Landing in Idaho on the east side of the river.

Remarks: The cage was placed in the Snake River on July 16, 1963 and removed on August 20, 1963. The cage was heavily infested with bottom organisms, predominantly Hydropsychid Caddisfly larvae. There was also a heavy growth of green algae Cladophora on the cage. Aside from the heavy Cladophora growth the sample was very clean. The cage was located in a riffle in fast moving water. The bottom consisted largely of rocks from 6 inch to 1 foot in diameter.

Station 3

Description: In the Snake River at Pittsburg Landing in Idaho on the east side of the river upstream from Cage Number 2.

Remarks: The cage was placed in the Snake River on July 16, 1963 and removed on August 20, 1963. The cage was similar to Cage Number 2 with Hydropsychidae predominating. The cage was again very clean with a heavy growth of Cladophora. The riffle conditions were physically the same as for Cage Number 2.

Station 4

Description: In the Salmon River downstream from the mouth of White Bird Creek on the south side of the river.

Remarks: The cage was placed in the Salmon River on July 16, 1963 and removed on August 20, 1963. At the time this cage was removed it was completely exposed. Therefore, a sample was taken in the vicinity of the cage using a piece of window screen.

Station 5

Description: In the Clearwater River near Spalding, Idaho, 1/8 mile upstream from U. S. Highway 95 bridge at small powerline crossing on the north side of the river.

Remarks: The cage was placed in the Clearwater River on July 16, 1963 and removed on August 22, 1963. The cage was 60% exposed at the time it was removed; however, the sample was clean as far as silt and debris were concerned. The cage was located in a riffle in rather swift water. The bottom consisted of rubble and rocks approximately 1-foot in diameter.

Station 6

Description: In the Grande Ronde River approximately 1/4 mile upstream from its confluence with the Snake River, on the north side of the river.

Remarks: The cage was placed on July 17, 1963 and removed on August 22, 1963. The cage was clean with very little silt and debris. It was located in a riffle in rapid moving water with the bottom consisting primarily of gravel and heavy rubble.

Station 7

Description: In the Snake River just above Asotin, Washington on the east side of the river.

Remarks: The cage was placed in the Snake River on July 17, 1963 and removed on August 21, 1963. The sample was very silty and located in relatively slack water. At the time of removal the cage was 50% exposed.

Station 8

Description: In the Snake River approximately 1 mile above the City of Asotin, Washington on the west side of the river.

Remarks: The cage was placed in the Snake River on July 17, 1963 and removed on August 22, 1963. It was located in fast water and the sample was fairly clean with little silt and debris. At the time of removal the cage was 70% exposed.

Station 9

Description: In the Snake River approximately 12 miles west of Clarkston, Washington on the east side of the river.

Remarks: The cage was placed in the Snake River on July 17, 1963 and removed on August 21, 1963. It was located in rather swift water and the rocks in and around the cage were covered with considerable silt at the time it was removed.

Station 10

Description: In the Snake River approximately 100 yards upstream from Cage Number 9 on the east side of the river.

Remarks: The cage was placed in the Snake River on July 17, 1963 and removed on August 21, 1963. At the time it was removed the cage was 50% exposed and heavily silted. It was located in swift water among large rocks 1 to 2-feet in diameter.

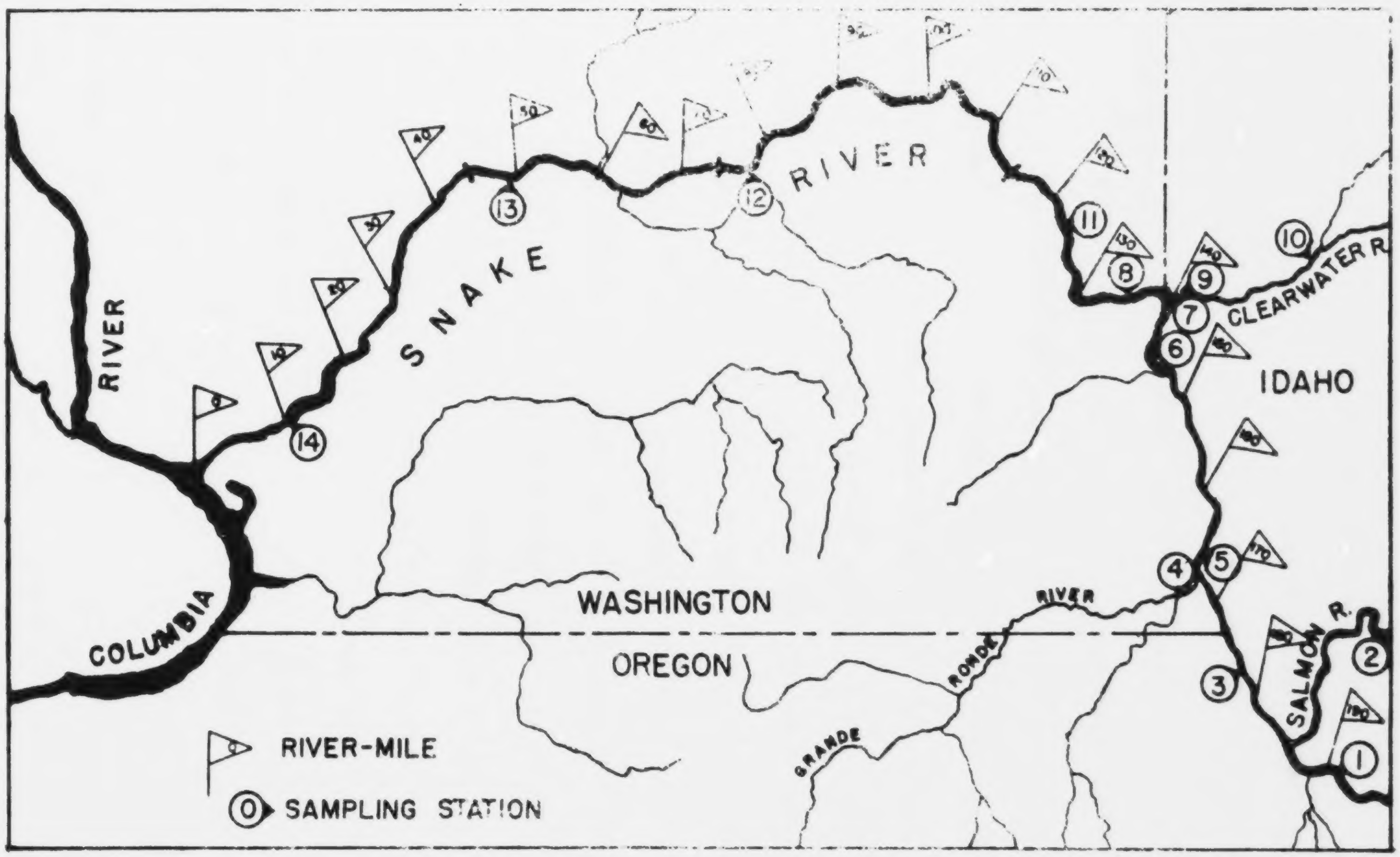
SUMMARY AND CONCLUSIONS

From the previous water quality information and from the data available to date from the current study program, the serious impairment of present water quality conditions cannot be substantiated. This is not to deny that undiscovered problems may exist. Should they exist however, it is felt that their significance would be that of predicting trends leading to problems rather than being problems in themselves as they are not of sufficient magnitude to herald their existence to the investigator or the water user.

In recognition of the need for further study, a joint program was inaugurated by the States of Idaho and Washington to explore the fundamental facts and from these develop a basic and coordinated plan of water quality management on an area-wide basis. Of major concern is the changing character of the receiving water anticipated in the near future on completion of the additional impoundments by the Lower Monumental, Little Goose and Lower Granite dams between the Lewiston-Clarkston Area and the mouth of the Snake River. These dams will complete the navigational slack-water begun by the construction of the Ice Harbor Dam located near the river mouth, to Lewiston, 140 miles upstream.

While the survey investigations are incomplete, the findings indicate that chemically and biologically the present water quality conditions are generally satisfactory. Physically, water temperatures are in excess of desirable limits for trout fishery during the summer months, and on occasion fibrous materials have caused the plugging of small irrigation pumps in the vicinity of Wawawai, approximately 20 miles downstream from the Lewiston-Clarkston Area. Esthetically, sporadic occurrences of perceptible color and odor give cause for complaint by downstream recreationalists. Bacteriologically, the inconsistency of the survey results have clouded the assessment of the existing conditions. Further work is scheduled to coincide with the second and third phases of the investigations.

(The map attached to the report is as follows:)


SNAKE RIVER
RIVER
COLUMBIA
CLEARWATER R.
SALMON R.
GRANDE RONDE RIVER
IDAHO
WASHINGTON
OREGON
1
2
3
4
5
6
7
8
9
10
11
12
13
14
0
10
20
30
40
50
60
130
140
150
160
170
180
190
RIVER-MILE
0 SAMPLING STATION

R. M. Harris

The following report contains findings and data resulting from a cooperative survey which was conducted during the summer of 1963. The field investigations were carried out jointly by the Idaho Department of Health and the Washington Pollution Control Commission.

About nine years ago the States of Idaho and Washington, together with the U. S. Public Health Service, conducted an exploratory study of water quality conditions in the same area that is outlined in today's conference. At that time it was concluded that no serious impairment in water quality existed which could not be corrected by treatment of municipal wastes from Lewiston and Asotin, who were then discharging untreated sewage. Clarkston, at that time, was operating a primary treatment plant. This untreated sewage created a problem in so far as complete recreational utilization of the water was concerned, and also for domestic water supply uses. The City of Lewiston and the Town of Asotin subsequently installed sewage treatment facilities which are adequate for stream flow characteristics now existing.

It can be stated without fear of serious contradiction that our agency has never had sufficient funds to develop a program which would simultaneously include every water quality control problem in the state. I also feel quite safe in saying that the same situation prevails in our neighboring states of Idaho and Oregon - and I can also state at this time that for over thirty years we have enjoyed a close and cooperative working atmosphere with these two states. Because of budgetary limitations we concluded in 1955 that the problems associated with this area must of necessity assume a low priority in our schedule of activities. This did not, however, mean that the problems were placed in the forgotten list.

In 1962 it was decided by both states that a new evaluation should be made, and a more comprehensive investigation was organized. Sewage treatment had been secured, new industries had moved into the area and plans for impoundment dams were approaching reality. These were the factors which caused our two states to again focus attention on this area. Joint planning for coordinated water quality management resulted in the following program objectives:

1. To initiate an immediate program for the correction of existing problems associated with food processing and wood pulping wastes.

2. To inventory existing and potential water uses and waste sources.

3. To establish common water quality objectives.

4. To determine the hydrological, physical,

chemical and biological characteristics of the common receiving waters.

5. To gather basic data for the prediction of future wastewater treatment requirements necessary to the prevention of water quality impairment.

6. To determine future wastewater treatment requirements necessitated by authorized impoundments.

7. To delineate water quality problems and to establish programs for corrective measures.

8. To establish a water quality monitoring program to serve as a basis for evaluating present and future problems.

Reconnaissance work indicated that to adequately measure the effect of the Lewiston-Clarkston area discharges on the chemical and biological water quality, a long section of the river would have to be investigated. The section selected for study extends from the Ice Harbor Dam at river-mile 10 to above the confluence with the Salmon River nearly 180 miles upstream. The Salmon River is the last major tributary for another 160 river miles. A total of 14 sampling stations were located along the study section including the mouths of the three major tributaries.

Existing water quality monitoring stations are maintained at four locations along the Lower Snake River as parts of both state and federal basic data collection networks. To augment these data, the special surveys of this joint study were designed for conduct during each of three significant hydraulic conditions of the river. The first of these is the July-August period representing conditions of low flow and warm water temperatures. The second phase is for the springtime condition following a period of low flow and prior to the flushing action of flood stage. This second phase should most closely resemble conditions of water quality that might be expected after the stream is converted to slack water. The third phase is to depict conditions during the maximum runoff period of May and June. The first of the three surveys was conducted during late July and early August, 1963, and the second and third phases are scheduled for the spring and May-June 1964 respectively.

From an analysis of the data included in the report previously mentioned, and from present knowledge of future plans for development of the Snake River, certain conclusions can be derived as follows:

1. Chemically and biologically the present water quality conditions are generally satisfactory.

2. Physically, water temperatures are in excess of desirable limits for trout fisheries during the summer

months, and on occasion fibrous materials have caused the plugging of small irrigation pumps approximately 20 miles downstream from the Lewiston-Clarkston area.

3. Esthetically, sporadic occurrences of perceptible color and odor give cause for complaint by downstream recreationalists.

4. Bacteriological information which was excluded from this report because of inconsistencies in the determinations is highly desirable to complete an assessment of the water conditions. This phase of the investigation will be stressed during the second and third parts of the study program as outlined.

5. Of major concern is the changing character of the receiving waters anticipated within the near future upon completion of additional impoundments on the lower river.

6. A joint program by the two states has been outlined to consider the effects of slack water on water quality and the future need for additional treatment of waste water discharges.

7. From previous water quality information, and from data available through the current study program, major concern for present water quality conditions cannot be substantiated. This is not to deny that undiscovered

problems may exist, but should they exist in the future it is our belief that they can be logically solved with a minimum of effort provided long range planning is incorporated into the overall development of the river.

We feel that even though the conclusions from this first phase of our joint study do now show that any serious water quality impairment exists, we will continue the studies as originally outlined, for we are interested in maintaining the highest possible standards in these waters consistent with known methods of control. This area has a very high water oriented recreational potential, but there is a real need for planning and coordination between federal agencies and between federal and state agencies if the maximum benefits are to be derived. In this effort we look toward continuing cooperation with the U. S. Public Health Service.

We know that certain unwarranted sources of pollution now exist, and these problems have not been swept under the rug. However, the major obstacle to logical planning for corrective measures on our side of the river is the lack of definite knowledge as to future plans for development of the Snake River.

In closing I wish to reiterate that there is no misunderstanding between the Idaho Department of Health and our Pollution Control Commission in methods and procedures required in our joint water quality management program. We are confident that they will continue to eliminate all sources of unreasonable pollution on their side of the river as we will continue to do on our side.

MR. STEIN: Thank you, Mr. Harris. Do you have any invitees?

MR. HARRIS: With the permission of the Chair, I should like to read, on behalf of the Department of Fisheries and the Department of Game, a statement jointly made by the two departments.

Although the Conference apparently will not specifically deal with fisheries, we appreciate the opportunity to present this statement of our concern for the water quality of the lower Snake River and its effect on food and game fishes and their environment.

The Snake River is the major transport waterway between the Columbia River and the salmon and steelhead spawning grounds of Idaho. It is imperative that these waters be maintained in an acceptable condition for adult and juvenile salmon and steelhead migrants.

There are many types of pollutants added to receiving waters which have an adverse effect on aquatic life. However, control of these pollutants oftentimes can be accomplished at their source. Efforts to control or eliminate untreated effluents should be continued and intensified. Educational programs on waste disposal would beequally as beneficial as weak enforcement laws in most instances.

Water temperature extremes are a prime factor affecting fish directly and in causing outbreaks of fish diseases. Studies in progress indicate that a water quality problem now exists and will be compounded with the completion of the additional Federal dams on the lower Snake River.

Turbidity remains a problem and is contributed by water returning from agricultural irrigation wasteways and as a result of incomplete soil management techniques. Slime growth is also a serious seasonal problem that increases with temperature rises in the presence of certain pollutants.

The Washington Departments of Fisheries and Game in cooperation with the Washington Pollution Control Commission have developed water quality standards for waters used by food and game fishes. Clean waters are essential for protecting, maintaining, and managing our fisheries resource.

We wish you a successful Conference and thank you for the opportunity to present this statement on the need for protection of water quality for fisheries.

MR. STEIN: Thank you, Mr. Harris.

Are there any comments or questions?

DR. CARVER: No.

MR. STEIN: Would you call on your participants?

MR. HARRIS: At this time I would like to invite Mr. Johnson, who is the president of the Washington State Sportsmen's Council and, as such, represents the organized sports groups in the State of Washington.

Mr. Johnson.

STATEMENT OF LOWELL S. JOHNSON, PRESIDENT, WASHINGTON STATE SPORTSMEN'S COUNCIL

MR. JOHNSON: My name is Lowell S. Johnson. I am President of the Washington State Sportsmen's Council which is an organization of 125 Sportsmen's clubs of the State of Washington with a paid membership exceeding 9,500 persons. Being made up as it is of persons from every area of the state and from every walk of life, the Council has become a representative voice of hundreds of thousands of outdoor recreation participants in Washington.

We are affiliated with the National Wildlife Federation, and are vitally interested in the conservation of all our natural resources, particularly those of fish, wildlife, and clean waters.

The Washington State Sportsmen's Council, like every other dedicated conservation group, has for years maintained a keen interest in the quality of our waters and the programs of agencies and departments charged with water quality management.

We feel that our water resources have an incalculable value and that the use of them is a privilege to be regulated by the people, and not a vested right of anyone. We feel that everyone who is extended the privilege of the use of water is morally bound to return that water in as pure a state as when it was taken or used. No one has the right to destroy something so vital to mankind as water. The Council has adopted numerous resolutions in support of this principle.

The Washington State Pollution Control Commission we feel is doing a commendable job in attempting to resolve the pollution problems of the state and their efforts have the support of most of the sportsmen. Of course, we keep prodding for a more aggressive program of clean waters. The effectiveness of their efforts could be greatly enhanced were more adequate funds available and we would enlist the support of the conference to that end.

L. S. Johnson

Sportsmen appreciate the interest of the Department of Health, Education, and Welfare in calling this Conference to consider the interstate water pollution problems of the area.

Since this conference today deals with real or potential pollution problems in the Snake River, I would like to outline the extent of the sportsmen's interest in this area. It is my understanding that technical aspects of the problems will be presented by appropriate staff members of State agencies.

The recreational value of the Snake River is not only of immense importance at this time, but represents one of the greatest long-range assets of the region. One has only to visit Fishhook or Sacajawea Parks on any warm summer day and note the number of swimmers, boaters, and water skiers to realize the extent to which these water-oriented sports are enjoyed. It is of paramount importance to those who participate in such sports that the water is always sufficiently pure for swimming, and, further, that a very high aesthetic quality be maintained as well.

Of even greater significance to our Sportsmen's Council is the fishery in the Snake River. Up to 75 percent, and perhaps more, of all steelhead trout and chinook salmon which pass McNary Dam enter the Snake River. It is a fact, documented by statistics of the Washington State Department of Game, that the Snake River is the number one Steelhead producing stream in the state! In 1963, approximately 43,000 man-days of fishing effort produced about 22,000 steelhead, some of which weighed as much as 30 pounds.

Besides supplying recreation, this fishery means a great deal to the economy of the region. Many hundreds of fishermen each year travel to the area from as far away as Spokane to fish for steelhead. The sportsmen of the State of Washington firmly hold that this resource should not only be perpetuated but that all reasonable steps should be taken to increase its worth. To this end, we will continue to encourage its development through our vocal support on such occasions as this, and also through other tangible efforts limited only by our collective talents and resources.

Countless thousands of bass are also taken from the waters of the Snake River every year, providing recreation for people throughout a wide area of Eastern Washington. At this time the dominant species is the small-mouth bass. With the completion of dams now under construction or authorized, we must anticipate that this swift-water species will be replaced in the impoundments by large-mouth bass or other spiny rays which thrive in slack water. This is an unfortunate but acceptable transition provided that pollution is not present which will allow the replacement of game species with scrap fish.

Although the actual harvest of salmon in the Snake River is small in comparison with that in the lower Columbia and with the species mentioned above, the critical importance of the lower Snake River to the perpetuation of the salmon resources of the Columbia River is well known to every ardent salmon fisherman. We dare not add the insult of pollution to the other hazards which have been thrown across the migratory routes of both the adults and their offspring.

The migratory fish that spawn and begin their life in the streams of the Snake River system have faced so many challenges during the past half century that no single factor can be cited as the major cause of depletion of many of the once-valuable runs. Up to this time, pollution of the Snake River seemingly has not been as significant as several other factors. On the other hand, it cannot be completely discounted as a contributor. The prognosis for the future is not bright if stringent controls on water quality are not invoked.

Those of us who spend a substantial amount of time in the pursuit of fish and game are well aware that the abundance of a species is highly dependent upon the proper habitat. If any one environmental factor is below optimum, the species will not thrive. If several factors are no better than "tolerable," continued survival in that area is questionable. We are concerned that the combination of environmental factors necessary for sustaining migratory trout and salmon during their passage through the Snake River may soon become sufficiently adverse that these prize species will gradually disappear.

We especially fear the combination of events which seems to be developing on the lower Snake River, namely the presence of more and more industrial, municipal, and agricultural wastes, a marked rise in water temperature, and the creation of extensive slack water areas. Each of these factors provides its own challenge to salmon and trout. Taken together they may be many times worse. At higher temperatures many chemicals become much more toxic, purification of organic materials is speeded up, the tolerance of cold water fish is lowered, fish diseases become more prevalent, and undesirable scrap fish become dominant.

We do not believe that the existing and potential problems of the Snake River can be effectively resolved solely through specifications applied to individual outfalls, nor that all possible steps for the safeguard of water quality are being taken. Individual controls are essential, but they must be considered in light of the combined needs of the valuable species that use the stream. The development of an appropriate set of water quality criteria for the Snake River which will assure perpetuation of the valuable runs would appear to offer one basis for long-range control of pollution in this instance. Such criteria take on added importance at state boundaries, such as between Idaho and Washington, where the objectional practice of passing waste from one state along to another takes place. Specific criteria might also provide the needed incentive for building facilities into dams that would allow the programmed release of impounded water in a manner that would minimize downstream temperatures.

We of the Washington State Sportsmen's Council feel that the entities engaged in river development have a responsibility for minimizing the danger of heat pollution and that their plans should include facilities for this purpose.

We wish to thank Mr. Harris for the invitation to participate in the Conference and pledge our assistance in any appropriate manner. We hope the Conference will result in an improved water quality for the Snake River.

MR. STEIN: Thank you, Mr. Johnson.

Are there any comments or questions?

MR. HARRIS: I would like to comment, Mr. Johnson, on a very carefully prepared paper. I think it shows a real understanding of the problems of water resource development that is not always shared by spokesmen that we hear from, even organizations such as we represent.

MR. STEIN: Mr. Johnson, I know you put considerable time into this statement.

I think it might help to mention this. In the development of water pollution control legislation, which passed the Senate, Senator Muskie of Maine was mindful of the fact that the shellfish resources could not be used too much in the New England area because of pollution, and the disappearance, you might say, of the anadromous fish. They used to have salmon in the New England area until about ninety years ago.

However, this question of the Federal Government getting into water quality criteria standards is not a simple one. It is a very controversial issue.

I don't know if this measure is before the House of Representatives, and I don't know how this will come out. I don't know how you can necessarily equate the criteria with standards. Evidently the Congress was talking in terms of standards, but this does not preclude the setting of these criteria or standards by the two states involved.

The next question is, of course, if they don't have the force of a federal stamp as to the criteria, how do you get them accepted in the construction of these big impoundments? As I say, this is up for debate now. I don't know how it is going to come out.

With reference to the second point you have underlined, that of building facilities into dams that would allow the programmed release of impounded water in a manner that would minimize downstream temperatures, Congress acted on that in 1961.

In the planning stage of every Federal impoundment built by the Corps of Engineers or the Bureau of Reclamation, we must recommend when it would be feasible to put in water storage, for release for water quality control. This is a very important thing, as you know.

However, there is one proviso. Such water storage release cannot -- I repeat, cannot -- be used as a substitute for treatment at the source.

When you come to a temperature problem, it may be very hard to say that treatment cannot be provided at the source to reduce that temperature. I don't want you to be misled and have any particular notions about the Congress, or Bureau of Reclamation, or us authorizing big storage areas in dams for releases to reduce temperatures. None of our economy-minded Congressmen or Senators would authorize the construction of a cooling tower at the source of the rises in temperature.

MR. HARRIS: We have representatives of one other Stage agency here at this time, the State Department of Health, who are naturally interested in this pollution problem. Mr. Jensen and Mr. James are both here.

Does either of you gentlemen have a statement you would like to enter?

MR. JAMES: Yes.

MR. HARRIS: This is Mr. Roger James, of the Department of Health.

MR. JAMES: Thank you, Mr. Harris.

STATEMENT OF ROGER JAMES, SUPERVISING PUBLIC HEALTH ENGINEER, WASHINGTON STATE DEPARTMENT OF HEALTH

MR. JAMES: I am Roger James, Supervising Public Health Engineer with the Washington State Department of Health, stationed at Spokane, and active in the interests of the Department through much of Eastern Washington. Our department has been asked to prepare a statement on the Lower Snake River and it is most appreciative of the opportunity.

In the preparation of this statement, we assume that the Washington Pollution Control Commission would present a report including much of the technical data available on water quality. This has already been entered in the record and will not be referred to in our statement.

The next decade promises a significant change in the character of the Lower Snake River. The completion of the three remaining dams between Clarkston and Ice Harbor Dam, together with John Day Dam on the Lower Columbia, will provide slack water navigation to the sea. This series of reservoirs, stretching through a predominantly arid area, will develop into a recreational mecca serving the three-state area.

Roger James

Clarkston, Asotin, and the suburban areas surrounding these cities for many years depended on surface water for domestic and irrigation purposes. This was taken primarily from Asotin Creek, with supplemental supplies from the Snake River. Drilled wells penetrating the underlying basalts have now replaced, entirely, the water from Asotin Creek; and the Snake River water is filtered and disinfected for periods of peak usage, only, by the Washington Water Power Company, the water purveyor in the Clarkston area. These wells will be unaffected by the changes planned for the Snake River. There are no other public water supplies in Washington using water from this river.

As the Snake River Basin develops, we expect to see extensive recreation areas between Clarkston and the mouth of the Snake River. These installations, the power plants at the dams, and water supplies for elevators, port facilities, and marinas may be developed using Snake River water for domestic supplies. We don't believe that the planning by the development agencies has reached this detail at the present time.

The Snake River is used for irrigation purposes. The largest existing development is in the Burbank area of the Columbia Basin Project. Considerable attention has been given to potential projects in the Basin to supplement several existing, relatively small developments. No irrigation water quality problems are known to exist.

The Corps of Engineers, with the cooperation of existing Park, Recreation and Game agencies, is planning a number of recreational developments on the Lower Snake River. These can be expected to resemble Hood Park, near Burbank, and other developments on the McNary Pool. Swimming, pleasure boating, water skiing, picnicking, and skin diving will be major activities.

Because of the steep canyon walls through much of the Lower Snake River area, recreation sites are not everywhere available. This may, because of expected high usage, tend to cause intensive development of the available sites. With the need for water supply, for beach areas, for boat launching facilities, and for waste disposal, this potential crowding may tend to cause sanitary difficulties. Developing agencies should carefully follow suggestions outlined in recent publications by the Water Supply and Water Pollution Control Subcommittee of the Columbia Basin Inter-Agency Committee.

To be acceptable to the public and to regulatory authorities, waters that are used for swimming, bathing, skin diving, water skiing, and similar activities, must conform to three general conditions: (1) They must be aesthetically enjoyable -- that is, free from obnoxious floating or suspended substances, objectionable color and odor; (2) they must contain no substances that are toxic upon ingestion, or irritating to the skins of human beings; (3) they must be reasonably free from pathogenic organisms.

These conditions can, in our opinion, be best achieved through the adoption of the Pacific Northwest Pollution Control Council's Water Quality Objectives as related to water for recreational use. This organization, consisting of public health and water pollution control officials of the Columbia Basin states and the province of British Columbia, adopted these objectives in 1952. Since that time, they have been widely used by all of the member states. Our department believes them to be realistic and possible of accomplishment in this Basin. A copy of these objectives is included as part of our department's statement.

We, with other interested groups, intend to exert our efforts during the coming years to achieve these water quality conditions in the Lower Snake River area.

I might add that the Pacific Northwest Pollution Control Council, to which I refer, is an organization of state health and water pollution agencies in the Columbia River system.

These water quality objectives were adopted by this body nearly a decade ago, and have been used by our State as its objectives since that time. A copy of these objectives will be forwarded to the hearing officer as a supplement to this brief statement.

In conclusion, I will say that the Washington State Department of Health, in cooperation with other organizations, will exert our efforts during the coming years to achieve these water quality objectives in the Lower Snake River area.

Thank you very much.

MR. STEIN: Thank you. Without objection, I think that since reference was made to those objectives, they will appear in the record with your statement.

The copy of the objectives will appear in the record with your statement, as if they were read. This will be best for the convenience of those who read the record. In this way, they will not have to flip back to a supplement.

(The Water Quality Objectives of the Pacific Northwest Pollution Control Council are as follows:)

Roger James

WATERSHED CONTROL FOR WATER QUALITY MANAGEMENT

April 1961

POLLUTION CONTROL COUNCIL, PACIFIC NORTHWEST AREA

WATER QUALITY OBJECTIVES

The Pacific Northwest is at present in an enviable position as regards its natural resources and potential development when compared with many other areas of this country. This is especially true of natural waters which are admittedly one of the area's greatest assets. Water is so definitely tied in with the health, welfare, and pleasure of citizens, and with the whole economic structure of the area as to make high water quality objectives not only desirable, but imperative.

It is hereby declared to be the policy of the Pollution Control Council of the Pacific Northwest Basins to encourage and promote programs for the preservation of the surface and ground waters of the basins and the restoration of such waters to the best possible condition consistent with the public health and welfare, the propagation and protection of fish and wildlife, and the domestic, recreational, agricultural and industrial development of the area.

Roger James

Whereas it is recognized that many waters of the basins have not yet been adversely affected by industrial, agricultural, or domestic development and, therefore, are of the highest possible quality, one objective of any water conservation program should be to preserve these waters in the best condition consistent with reasonable and beneficial future development.

Whereas it is also recognized that other waters in the basin now exist at a level of quality below that which is necessary and desirable for the best interest of the people, a second objective should be to restore these waters to conditions permitting increased beneficial uses by the people of the area.

With these considerations before it, the Council recommends the following objectives of water quality.

Conditions Applying to Objectives

For waters having more than one use, that use having the highest order shall apply.

In any case where a tributary water which receives sewage or industrial waste flows into waters having a different use than the tributary, and where these tributary waters affect these uses, the objectives with the highest order will apply.

Natural waters may on occasions have characteris-

Roger James

tics outside of the limits established by the objectives. The objectives set forth relate to the condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes.

There is a blank in the table in the column "Organisms of the Coliform Group" opposite item E, "Agricultural and Industrial Water Supply." A similar water quality objective as for item C, "Bathing, Swimming, and Recreation" should apply wherever human contact is involved. It is desirable to have a safe clean water for irrigation, and uncontaminated water for sawmill log ponds and log debarking operations in order to protect log handlers.

In the column "Taste or Odor-Producing Substances," opposite item B, "Water Supply, etc.," there is reference to a "threshold odor number above eight (8)." This refers to a relative standard for perceptible odor in a water sample, determined by making dilutions of the sample, as explained in "Standard Methods for Examination of Water and Wastewater," American Public Health Association, Eleventh Edition, 1960.

(The table referred to is as follows:)

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WATER QUALITY OBJECTIVES AND MINIMUM TREATM

WATER QUALITY → WATER USES ↓	WATER QUALITY OBJECTIVES, APPLICABLE TO RECEIVING WATERS, FOR SALT AND FRES WATERS					
	ORGANISMS OF THE COLIFORM GROUP	FLOATING, SUSPENDED & SETTLEABLE SOLIDS & SLUDGE DEPOSITS	TASTE- OR ODOR-PRODUCING SUBSTANCES	DISSOLVED OXYGEN	pH	TOXIC, COLORED, OTHER DELETERIO SUBSTANCES
A WATER SUPPLY, DRINKING, CULINARY & FOOD PROCESSING WITHOUT TREATMENT OTHER THAN SIMPLE DISINFECTION AND REMOVAL OF NATURALLY PRESENT IMPURITIES	MOST PROBABLE NUMBER COLIFORM BACTERIAL CONTENT OF A REPRESENTATIVE NUMBER OF SAMPLES SHOULD AVERAGE LESS THAN 50 PER 100 ML. IN ANY MONTH	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES OR OTHER WASTES OR WHICH, AFTER REASONABLE DILUTION & MIXTURE WITH RECEIVING WATERS, INTERFERE WITH THE BEST USE OF THESE WATERS FOR THE PURPOSE INDICATED	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES, OR OTHER WASTES	GREATER THAN FIVE (5) PARTS PER MILLION EXCEPT FOR UNDERGROUND WATERS	HYDROGEN ION CONCENTRATION EXPRESSED AS pH SHOULD BE MAINTAINED BETWEEN 6.5 & 8.5	NONE ALONE OR IN CO BINATION WITH OTHER SUBSTANCES OR WASTE SUFFICIENT AMOUNTS OF SUCH NATURE AS TO MAKE RECEIVING WATER UNSAFE OR UNSUITABLE FOR USE INDICATED (U.S.P.H.S. STDS.)
B WATER SUPPLY, DRINKING, CULINARY & FOOD PROCESSING WITH TREATMENT EQUAL TO COAGULATION, SEDIMENTATION, FILTRATION, DISINFECTION AND ANY ADDITIONAL TREATMENT NECESSARY FOR REMOVING NATURALLY PRESENT IMPURITIES	M.P.N. COLIFORM BACTERIAL CONTENT WHEN ASSOCIATED WITH DOMESTIC SEWAGE OF A REPRESENTATIVE NUMBER OF SAMPLES SHOULD AVERAGE LESS THAN 2000 PER 100 ML. AND SHOULD NOT EXCEED THAS NUMBER IN MORE THAN 20 PER CENT OF SAMPLES EXAMINED IN ANY MONTH	SAME AS FOR USE "A" ABOVE	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES, OR OTHER WASTES WHICH, AFTER REASONABLE DILUTION & MIXTURE, WILL INCREASE THE THRESHOLD ODOR NUMBER ABOVE EIGHT (8)	GREATER THAN FIVE (5) PARTS PER MILLION EXCEPT FOR UNDERGROUND WATERS	SAME AS FOR USE "A" ABOVE	SAME AS FOR USE "A" ABOVE
C BATHING, SWIMMING AND RECREATION NOTE: WHEN WATERS ARE USED FOR RECREATIONAL PURPOSES SUCH AS FISHING & BOATING, EXCLUSIVE OF BATHING & SWIMMING, THE NUMBER "1000" MAY BE SUBSTITUTED FOR "240" IN STATEMENT OF COLIFORM OBJECTIVE	COLIFORM BACTERIAL CONTENT OF A REPRESENTATIVE NUMBER OF SAMPLES SHOULD AVERAGE LESS THAN 240 PER 100 ML. AND SHOULD NOT EXCEED THIS NUMBER IN MORE THAN 20 PER CENT OF SAMPLES EXAMINED WHEN ASSOCIATED WITH DOMESTIC SEWAGE (SEE NOTE UNDER "C" AT LEFT)	SAME AS FOR USE "A" ABOVE	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES, OR OTHER WASTES WHICH, AFTER REASONABLE DILUTION & MIXTURE, WILL INTERFERE WITH THE BEST USE OF THESE WATERS FOR THE PURPOSE INDICATED	GREATER THAN FIVE (5) PARTS PER MILLION	SAME AS FOR USE "A" ABOVE	SAME AS FOR USE "A" ABOVE
D GROWTH & PROPAGATION OF FISH, SHELLFISH & OTHER AQUATIC LIFE	COLIFORM BACTERIAL CONTENT OF A REPRESENTATIVE NUMBER OF SAMPLES SHOULD NOT HAVE A MEDIAN CONCENTRATION GREATER THAN 70 PER 100 ML. IN WATERS USED FOR THE GROWTH & PROPAGATION OF SHELLFISH	SAME AS FOR USE "A" ABOVE	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES, OR OTHER WASTES WHICH WILL INTERFERE WITH THE MARKETABILITY OR PROPAGATION OF RECREATIONAL OR COMMERCIAL FISH, SHELLFISH, OR OTHER EDIBLE AQUATIC FORMS	GREATER THAN SIX (6) PARTS PER MILLION	SAME AS FOR USE "A" ABOVE	NONE ALONE OR IN CO BINATION WITH OTHER SUBSTANCES OR WASTE SUFFICIENT AMOUNT O SUCH CHARACTER AS T MAKE RECEIVING WATE UNSAFE OR UNSUITABL FOR USE INDICATED
E. AGRICULTURAL AND INDUSTRIAL WATER SUPPLY WITHOUT TREATMENT EXCEPT FOR THE REMOVAL OF NATURAL IMPURITIES TO MEET SPECIAL QUALITY REQUIREMENTS, OTHER THAN THOSE CLASSIFIED UNDER "A" ABOVE. NOTE: FOR AGRICULTURAL WATER SUPPLY, SALINITY AND SODIUM HAZARDS ARE DETERMINED BY ELECTRICAL CONDUCTIVITY (EC x 10^6) AND SODIUM ADSORPTION RATIO (SAR). WATERS HIGH IN BOTH SALINITY AND SODIUM ARE GENERALLY UNSUITABLE FOR IRRIGATION PURPOSES. (SEE "CLASSIFICATION AND USE OF IRRIGATION WATERS", CIRCULAR NO. 969, U. S. DEPARTMENT OF AGRICULTURE, NOVEMBER, 1955)		SAME AS FOR USE "A" ABOVE	NONE ATTRIBUTABLE TO SEWAGE, INDUSTRIAL WASTES, OR OTHER WASTES WHICH WILL ADVERSELY AFFECT THE MARKETABILITY OF AGRICULTURAL OR INDUSTRIAL PRODUCE	GREATER THAN THREE (3) PARTS PER MILLION	HYDROGEN ION CONCENTRATION EXPRESSED AS pH SHOULD BE MAINTAINED BETWEEN 6.0 & 9.5	SAME AS FOR USE "A" ABOVE

A

JECTIVES AND MINIMUM TREATMENT REQUIREMENTS

TO RECEIVING WATERS, FOR SALT AND FRESH SURFACE WATERS AND UNDERGROUND WATERS								MINIMUM TREATMENT REQUIREMENTS FOR DOMESTIC SEWAGE
R ODOR-PRO- SUBSTANCES	DISSOLVED OXYGEN	pH	TOXIC, COLORED, OR OTHER DELETERIOUS SUBSTANCES	PHENOLIC COMPOUNDS	OIL	HIGH TEMPERATURE WASTES		
ABLE TO SEWAGE, ASTES, OR OTHER	GREATER THAN FIVE (5) PARTS PER MILLION EXCEPT FOR UNDERGROUND WATERS	HYDROGEN ION CONCENTRATION EXPRESSED AS pH SHOULD BE MAINTAINED BETWEEN 6.5 & 8.5	NONE ALONE OR IN COMBINATION WITH OTHER SUBSTANCES OR WASTES IN SUFFICIENT AMOUNTS OR OF SUCH NATURE AS TO MAKE RECEIVING WATER UNSAFE OR UNSUITABLE FOR USE INDICATED (U.S.P.H.S. STDS.)	LESS THAN FIVE (5) PARTS PER BILLION	NONE	NOT IN SUFFICIENT QUANTITIES ALONE OR IN COMBINATION WITH OTHER WASTES TO INTERFERE WITH THE USE INDICATED		SEDIMENTATION AND EFFECTIVE DISINFECTION
TABLE TO SEWAGE, WASTES, OR OTHER , AFTER REASON- & MIXTURE, THE THRESHOLD ABOVE EIGHT (8)	GREATER THAN FIVE (5) PARTS PER MILLION EXCEPT FOR UNDERGROUND WATERS	SAME AS FOR USE "A" ABOVE	SAME AS FOR USE "A" ABOVE	LESS THAN FIVE (5) PARTS PER BILLION	NONE ALONE OR IN COMBINATION WITH OTHER SUBSTANCES OR WASTES AS TO MAKE RECEIVING WATER UNFIT OR UNSAFE FOR THE USE INDICATED	SAME AS FOR USE "A" ABOVE		SEDIMENTATION AND EFFECTIVE DISINFECTION
TABLE TO SEWAGE, WASTES, OR OTHER , AFTER REASON- & MIXTURE, WITH THE BEST WATERS FOR THE ICATED	GREATER THAN FIVE (5) PARTS PER MILLION	SAME AS FOR USE "A" ABOVE	SAME AS FOR USE "A" ABOVE	LESS THAN 25 PARTS PER BILLION OR NONE IN SUFFICIENT AMOUNTS SUCH AS TO IMPART A RESIDUAL TASTE TO RECREATIONAL OR COMMERCIAL FISH, SHELLFISH, OR OTHER AQUATIC FORMS	SAME AS FOR USE "B" ABOVE	SAME AS FOR USE "A" ABOVE		SEDIMENTATION AND EFFECTIVE DISINFECTION
TABLE TO SEWAGE, WASTES, OR OTHER WILL INTERFERE ETABILITY OR OF RECREATIONAL AL FISH, SHELL- EDIBLE	GREATER THAN SIX (6) PARTS PER MILLION	SAME AS FOR USE "A" ABOVE	NONE ALONE OR IN COMBINATION WITH OTHER SUBSTANCES OR WASTES TO SUFFICIENT AMOUNT OR OF SUCH CHARACTER AS TO MAKE RECEIVING WATERS UNSAFE OR UNSUITABLE FOR USE INDICATED	SAME AS FOR USE "C" ABOVE	SAME AS FOR USE "B" ABOVE	NONE IN SUFFICIENT QUANTITY AS TO BE INJURIOUS TO OR INTERFERE WITH THE NORMAL PROPAGATION OF FISH, SHELLFISH, OR OTHER AQUATIC LIFE		SEDIMENTATION FOR ALL USES UNDER THIS GROUP BUT DISINFECTION REQUIRED IN ADDITION ONLY IF DISCHARGED INTO WATERS USED FOR THE GROWTH & PROPAGATION OF SHELLFISH, EITHER COMMERCIAL OR RECREATIONAL
TABLE TO SEWAGE, WASTES, OR OTHER WILL ADVERSELY MARKETABILITY OF AL OR INDUSTRIAL	GREATER THAN THREE (3) PARTS PER MILLION	HYDROGEN ION CONCENTRATION EXPRESSED AS pH SHOULD BE MAINTAINED BETWEEN 6.0 & 9.5	SAME AS FOR USE "A" ABOVE	NONE IN SUFFICIENT QUANTITY AS TO MAKE RECEIVING WATER UNSUITABLE FOR USE INDICATED	SAME AS FOR USE "B" ABOVE	SAME AS FOR USE "A" ABOVE		SEDIMENTATION AND EFFECTIVE DISINFECTION

Adopted by
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PACIFIC NORTHWEST AREA
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3rd Revision ______

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Roger James

Members of the Pollution Control Council have effectively used these water quality objectives since their adoption in 1952 in carrying out their individual pollution control programs. In recent years Montana and Idaho have formally adopted comparable objectives to guide their State programs. Oregon and Washington, together with the U. S. Public Health Service, have adopted an action program on the interstate boundary waters of the Lower Columbia River in keeping with these objectives. Similarly Oregon and Washington have consistently aimed their programs at the goal established in this document.

The Water Pollution Control Advisory Board has reviewed and concurred with the following recommendations of the National Conference on Water Pollution which are pertinent to this manual:

(1) Goal of Pollution Abatement. The goal of pollution abatement is to protect and enhance the capacity of the water resource to serve the widest possible range of human needs. This goal can be approached only by accepting the positive policy of keeping waters as clean as possible, as opposed to the negative policy of attempting to use the full capacity of water for waste assimilation.

(2) A National Credo. The adoption of a suggested national credo should be given as wide and consistent

publicity as is feasible. The content of the credo should include the following basic concepts: (a) users of water do not have an inherent right to pollute; (b) users of public waters have a responsibility for returning them as nearly clean as is technically possible; and (c) prevention is just as important as control of pollution.

(3) Comprehensive River Basin Development. Planning for the comprehensive development of each major basin or water resource area should be established as State and national policies. By comprehensive development we mean the application of integrated multiple-purpose design, planning, and management, which include the joint consideration of ground and surface waters and systematic conservation by water users.

(4) Recreation as a Full Partner with Other Use Interests. Public policy should formally recognize the recreation value of our water resources as a full partner with domestic, industrial, and agricultural values in water quality management policies and programs.

(5) Strengthening of State Programs. State statutes and organizational structures for water pollution control should be reviewed, revised and strengthened where necessary.

MR. STEIN: Thank you.

Are there any comments or questions?

MR. HARRIS: I wish to thank Mr. James for a very lucid presentation.

MR. STEIN: Are there any more participants?

MR. HARRIS: Mr. Jensen of the State Health Department is here.

MR. JENSEN: I believe I can speak from here.

MR. STEIN: Would you identify yourself?

MR. JENSEN: I am Emil C. Jensen, Chief Sanitary Engineer of the Washington State Department of Health.

STATEMENT OF EMIL C. JENSEN, CHIEF SANITARY ENGINEER, WASHINGTON STATE DEPARTMENT OF HEALTH

MR. JENSEN: I would just like to add and/or confirm an observation that Mr. Harris made, by noting that our department has experienced extensive and full cooperation of the Idaho Department of Health over the years, over many years, and to further note that it has been our observation that they have vigorously and continuously tried to seek improvements in their position to deal with pollution matters, and as they have improved their position they would follow through to seek abatement of the pollution sources.

MR. STEIN: In regard to Mr. Jensen's remarks, I might say that I don't think there is any implication that anyone feels any differently.

I think Mr. Harris, though, in his prepared statement may have put his finger on it. He has said, "It can be stated without fear of serious contradiction that our agency has never had sufficient funds to develop a program which would simultaneously include every water control problem in the state."

Recognizing the situation that you have in Washington, as Mr. Harris and Mr. Jensen are already familiar with, we agree that it is a statement from the point of view of Washington. In the past, it may have had a relatively low priority, considering some of your other problems.

The difficulty arises sometimes where, by Federal statute, we have jurisdiction over the interstate waters, the Secretary calls a conference of this type in an area where your State by virtue of the ordinary development of this program, has not given priority to that area.

As you know, the Federal and State people are going to be in this business for a long time. The thing for us to do is to try, all of us, and work this out so that it will not result in a dislocation of the State program. We don't expect the State of Washington or the State of Idaho to drop its pollution abatement efforts in other areas of the state, just became someone in Washington presses a button, and put all its resources in the Snake River.

Do you have anything more?

MR. HARRIS: I would like to ask if there are any other official representatives of State agencies, or unofficial organizations in the State of Wasnington.

STATEMENT OF CHARLES ROE, OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF WASHINGTON

MR. ROE: My name is Charles Roe. I am representing the Attorney General of the State of Washington.

I wish, first of all, to thank Director Harris who invited me to be here. I am here representing the Attorney General, Mr. O'Connell. He did ask me to relate to this hearing that they will continue their full cooperation with the Program Director, Mr. Harris, including the promotion of his efforts to control pollution in the State of Washington.

Thank you.

MR. STEIN: Are there any comments?

I might say, from the standpoint of the Federal Government, that we have enjoyed the highest degree of cooperation with the Attorney General's Office in Washington in all matters in which we have engaged. I would also say this: This is above and beyond the call of duty. They have really been cooperative.

MR. HARRIS: Thank you, Mr. Stein.

Is there anyone else from the State of Washington who would like to comment?

(There was no response.)

MR. STEIN: I think that concludes the presentation by the State of Washington. At this point, we will turn to Idaho, and Dr. Carver.

STATEMENT OF TERRELL O. CARVER, M. D., CONFEREE AND ADMINISTRATOR OF HEALTH, STATE OF IDAHO

DR. CARVER: There can be no doubt that the pollution of water is a tremendous problem throughout the whole United States and that the control and prevention of water pollution constitutes a tremendous challenge to us all; yet water pollution is a problem area in which Idaho may well be proud of its accomplishments.

T. O. Carver

We in Idaho can be grateful for, and are proud of, our water inheritance and are proud also that it is being used wisely and conserved and protected for those who come after us.

The Idaho State Board of Health and its administrative arm, the Department of Health, have recognized that the surface and sub-surface waters which we have in Idaho will quench the thirst of humans and of industries in the years to come. Without good water, the economy of Idaho will fail to grow and expand. In short, we in Idaho have good water, both in supply and quality, and intend to keep it that way.

Yet I must confess that we have not had great enthusiasm over the fact that this conference is being held here in Lewiston on this date, and I think a few comments in the way of an explanation fo [illegible] less than strong enthusiasm on our part are in order.

First, my understanding of federal Public Law 660 is that conferences such as this may be called on the basis of at least one of the following situations prevailing:

1) The Governor of a State may request such a conference.

2) The water pollution control authority of any

State may request the calling of a conference, or

3) The Secretary of the Department of Health, Education, and Welfare may call a conference on his own initiative if he has reason to believe that there is pollution of interstate water.

The third situation applies with respect to this particular conference. In this connection, there is one circumstance relating to the calling of this conference by Secretary Celebrezze which I feel constrained to point out; namely, that the Secretary notified us of the fact that the conference would be convened on this date and in this place in a letter dated August 7, 1963, in which he indicated that certain reports, surveys, and studies which had been conducted by this federal agency represented that there was pollution of the waters of the Snake River in the vicinity of Lewiston, Idaho - Clarkston, Washington -- yet the report of such studies on the Snake River carried out by the U. S. Public Health Service was not made known to the Idaho Department of Health until December 1963 (some four months after the call of the conference by the Secretary and only a few short weeks before the convening of the conference). As one might expect, this report did stipulate that the Snake River in the Lewiston area was polluted.

Permit me, if you will, to say just a few words regarding our views of what we believe some of the results which the holding of this conference at this time and place might hold for the future. If nothing more, this conference will undoubtedly emphasize again the growing importance of an adequate supply of clean water to us all and we will thereby take another small step forward in our educational program by which we make all real progress in this field. On the other hand, however, the effects may not necessarily be wholly on the plus side. For example, we know that following the conference called on the Bear River several years ago the representatives of one community in southeastern Idaho became so outraged at some of the statements made at that hearing that corrective measures to provide more adequate sewage treatment for that community were delayed for several years. We sincerely hope that this conference will not complicate or otherwise impede the orderly development and progress of plans and activities already made and under way in the abatement of known water pollution problems in the area in which we are meeting today. We are confident that this was not the Secretary's intent.

Still another reason for our somewhat less than overwhelming enthusiasm for the convening of this conference by the Secretary of Health, Education, and Welfare is the possibility, if not the probability, that the mere holding of the conference by the Federal Government will be interpreted by many people as indicating that in some manner we in Idaho have failed -- that Idaho and Idaho's water pollution control program is either incompetent, lethargic, or stupid. I think that, following a careful review of the facts, the exact opposite will be made known to you.

The State of Idaho has already made tremendous progress in the cleaning up of its streams and in the prevention of water pollution. Idaho is neither a highly industrialized nor heavily populated State and we have within our borders a considerable number of rather large streams. For these reasons, serious water pollution did not extend over large areas and public concern on this matter is of fairly recent development.

It was not until 1957 that the Idaho State Board of Health was created and established, as it is now constituted, by the Idaho Legislature and was given broad responsibilities in many health fields. Although the Idaho Department of Health had carried out advisory, surveying, and promotional activities prior to this time, it was apparent that we still were not keeping pace with the problem. The Idaho Board of Health did, therefore, shortly after its appointment declare water pollution to be one of the State's most serious and important problems and directed the Department of Health to develop a sound program aimed at solving this problem.

It was recognized that there are many phases to a successful program in water pollution abatement and control and we proceeded to develop our activities on a broad base within the financial and trained personnel capabilities available to us. At the same time the Board of Health gave clear and unequivocal recognition -- through the enunciation of a policy for the control of water pollution in the State -- to the proposition that water in Idaho should be made available for all legitimate beneficial uses, including but not limited to domestic water consumption, agriculture, industry, the propagation of fish and wildlife, and for recreation.

Idaho's water pollution control program has, in my opinion, kept pace with the increasing national interest in water pollution control, and it is further my opinion that our efforts have, in many instances, been successful considerably in advance of the results obtained in many other States throughout the country, and even in certain instances in advance of water pollution control activities carried out by federal installations located within the State of Idaho.

T. O. Carver

In brief, our program has been developed on the basis of the following activities:

1) The establishment of a priority system for communities to receive Federal Aid Construction Grants for sewage treatment plants with special emphasis on those which were responsible for pollution of interstate streams.

2) A vigorous program aimed at assisting communities in informing their citizens of water pollution problems so they might be in position to intelligently express themselves at the polls when the necessary bond elections were held.

3) A positive clean-up program in the most seriously affected sections of Idaho's streams aimed at all sources of wastes, based upon careful field and laboratory studies of the nature, volume, and strength of wastes; the nature and flow pattern of the receiving stream, and both the present and future uses of the receiving stream. Parenthetically, I think it should be mentioned that the number of miles of streams in Idaho seriously polluted was very low and has been decreasing steadily. It is estimated that Idaho has approximately 43,000 miles of streams, including lake and reservoir shore lines. Currently, in our program of water clean-up we have less than 100 miles of this entire water way which we consider to be seriously contaminated.

The upper part of the Snake River, which is that portion located in southern Idaho, has been more heavily contaminated and this is where we have concentrated our greatest efforts.

The municipalities of Idaho have made considerable progress in the building and operation of waste treatment facilities. In 1956 only forty-two percent of the population of Idaho served by sewers was connected to suitable waste treatment facilities. At the present time this percentage has been increased to over ninety percent. The State Board of Health recently established a time schedule which will require the development of plans and construction of projects to provide adequate treatment facilities for the remaining small number of sewered communities not now having such facilities. The Federal grants-in-aid program for the construction of sewage treatment facilities has been extremely helpful to us in this regard.

Progress has also been made in the treatment of industrial wastes. Industry generally is dependent upon the ready availability of a large amount of good water. Recognizing this situation, the Idaho Department of Health and Idaho industries have worked together to reach the best solutions possible. Perhaps no better example of this can be given than the potato waste pilot plant study of 1961. Idaho has long been a leader in the growing of potatoes and more recently in the processing of potatoes. With the advent of the potato processing industry in Idaho a serious problem arose in connection with the disposal of that fifteen to twenty-five percent of each processed potato which leaves the plant as starch waste. A joint committee composed of representatives of the Department of Health and of industry was created and a crash program for studying this problem was undertaken. It was decided to establish a pilot study plant, and this was accomplished in the fall of 1961. This pilot plant, with direct assistance from personnel of the Department, was operated for a period of six months during which time design criteria were first established for the primary treatment of potato wastes. By the spring of 1963 mechanical clarification equipment meeting the design criteria developed at the pilot study plant had been installed in all fifteen of the industrial plants involved in the study, and at a cost to the industries in excess of $2,000,000.

As I think you have probably surmised by now, we in Idaho had to recognize early that we did not have the capability of carrying out a total clean-up program in all parts of the State at the same time. For this reason we selected those areas of the State for concentration of our efforts where there existed the greatest degree of water quality impairment. In other words, we took on the worst areas first.

I would like to describe at this point the abatement procedures which we have undertaken in a specific example -- this example is the water pollution problems on the upper portion of the Snake River. The abatement procedures which were followed are as follows:

1) On August 3, 1961 - the Idaho State Board of Health established a time schedule whereby plans for waste treatment facilities were to be submitted to the Board on or before January 1, 1962; and the construction of these facilities was to be completed on or before September 1, 1962. These time schedule deadlines were applied to twenty-two industries and ten communities.

2) Public hearings were held on October 24 and 25, 1962 to determine compliance with these deadlines.

3) On December 7, 1962, the Idaho Water Pollution Control Advisory Council met to review transcripts of the proceedings at these two hearings and to make recommendations to the State Board of Health for such further actions as were believed necessary.

4) At the February 7, 1963 Board of Health meeting, formal orders for pollution abatement were issued to ten communities and industries, the other communities and

industries having already complied with the regulations.

5) These orders were subsequently complied with, both by the communities and the industries, without the Board's having to resort to the institution of legal action.

Up to the present time, the Idaho Board of Health has established time schedules for pollution abatement applicable to ninety-six communities and industries. Seventeen formal pollution abatement orders have been issued by the Board.

To summarize, since beginning an aggressive program of water pollution control in 1957, we in Idaho have accomplished the following things:

1) The Board of Health has promulgated water pollution control regulations.

2) A special section on water pollution control has been established in the Department of Health's Division of Engineering and Sanitation.

3) The Board of Health has appointed a State Water Pollution Control Advisory Council composed of nine members and this council has been active in the water pollution control field.

4) Through the efforts of a small but extremely competent staff including engineers, chemists, and biologists, the Department has developed a comprehensive plan of action

for reduction of existing water pollution and the prevention of new sources of pollution, as well as a program of continual surveillance of our streams.

5) The establishment of a training and certification program for sewage treatment personnel.

6) The provision of assistance to both municipalities and industries on necessary research projects.

7) Developed, with substantial assistance from the Idaho Attorney General's Office, legal enforcement procedures.

8) Carried on a successful public information program.

We come now to the water pollution problem on the lower reaches of the Snake River which is, of course, the subject of this conference. I should like to state that it is our opinion that that portion of the stream which we are considering today is not a seriously polluted stretch of water. For those of you who are not intimately acquainted with this area, I would first like to point out that the Snake River is a fishway for a tremendous number of migratory salmon and steelhead fish every year. I have been advised that steelhead fishing during the past year has been remarkably good (although my own personal efforts to confirm this fact resulted in my snagging and losing quite a number of lures on the rocky bottom of the stream).

As early as 1955, we in Idaho cooperated with the State of Washington and the Public Health Service in conducting a joint study of the areas of the Snake River under discussion today. We were unable at that time to determine if any actual degradation of the water from industrial waste was taking place and, for this reason, did not give this area high priority for the concentration of our efforts. We did determine that untreated domestic sewage was a problem and established a program to provide for sewage treatment. Under present flow conditions, we feel this has been accomplished.

For the record, I would like to report that, in the past six years, domestic sewage treatment plants have been built at Lewiston, Orofino, Kamiah, and Kooskia, Idaho -- all communities on the Clearwater River. Perhaps it should also be mentioned that these sewage treatment plants all utilized federal grants-in-aid.

As further confirmation of my statement that this stretch of the Snake River is not seriously polluted, I can even quote statements contained in the "REPORT ON POLLUTION OF INTERSTATE WATERS OF THE SNAKE RIVER NEAR AND BELOW LEWISTON, IDAHO, AND CLARKSTON, WASHINGTON," prepared by Mr. G. N. Dietrich, Sanitary Engineer, U. S. Public Health

Service, dated December 1963, as follows:

> "The significance of bacterial pollution existing in the Snake River near and below Lewiston, Idaho, and Clarkston, Washington, cannot be evaluated on the basis of presently available information."

Also:

> "The discharge of these highly colored, odorous, and turbid wastes results in damage to the aesthetic value of Snake River waters in Washington."

I think the key word here is "aesthetic." Further:

> "During the first week of the survey, average stream flow in the Snake River below the Clearwater near Clarkston was 27,060 cubic feet per second; during the second survey period, it was 23,120 cubic feet per second."

This is obviously a fair amount of dilution water for the above mentioned "highly colored, odorous, and turbid wastes." And still another quotation:

> "To date, however, no fish kills have been reported and there is not sufficient information to judge if toxicity of these is presently a problem."

T. O. Carver

By 1962, both Idaho and Washington had reached a point in their programs where they felt that they were now in a position to make additional studies and, on the basis of these studies, they could prepare a mutually acceptable program for providing any indicated water pollution remedial action on the lower Snake River. At a meeting on September 18, 1962, representatives of the water pollution control programs of both States met to outline procedures and details for the conduct of the study. It was felt that to properly evaluate the problem, stream surveys would be necessary at different seasons of the year and under different conditions of flow. The study, to be meaningful, would also have to include biological analyses of conditions in the stream as well as the determination of the physical character and bacteriological characteristics of the stream. Our first stream survey in connection with this study was completed in July 1963. On the basis of this survey and study, the existing problem, as we see it, is:

1) At the present there are industrial wastes discharges in the area which technically violate the minimum standards of both States. I am referring to the discharge of settleable solids.

2) There is some evidence of sludge deposits in the stream. These are at the present time of minor importance

and their source has not been definitely determined.

3) There is an odor typical of kraft paper mill effluent existing at certain times and for varying distances downstream from the point of the mill discharge at Lewiston. The seriousness and extent of this odor problem has not been determined.

4) Under present flow conditions there is no evidence of stream degradation by oxygen depletion, or of interference with fish and other beneficial aquatic life.

5) The waste load makes no appreciable change in the suspended solids, biochemical oxygen demand, or color of the Snake River below Lewiston as compared with the river above Lewiston.

In brief then, we do not believe that there is a serious water pollution problem in this section of the Snake River. There are of course solids in the river that should not be there and there is also an odor problem. Of the two, the problem of the solids is the more important and fortunately the more easily solved. We are confident that this problem can be solved. We think it is already being solved. Whether or not this conference was held, our interest in the pollution problem in this portion of the Snake River will continue to be directed more toward the future. When the dams scheduled to be constructed downstream from Lewiston are completed and thereby slack water comes to Lewiston, it is our opinion that the problem of pollution control in this stream will be entirely different than it is today. Pollution in running water is altogether different than pollution in stagnant water. What may not be a serious problem in running water could very well become a serious problem in stagnant water.

We believe that our program should be to work toward the solution of the problem which slack water will bring about in the belief that this will also be the best way of attacking whatever present problem of pollution exists.

I would like at this point to clearly point out to the Department of Health, Education, and Welfare what constitutes our major difficulty in planning for the future; namely, our lack of knowledge of the stream flow conditions which will prevail after the construction of the dams on the Snake River below Lewiston. Until we know what this stream flow pattern will be in this portion of the river when the construction is finished, we cannot adequately plan for water pollution control. We have attempted to get this information from the Public Health Service. To date we have had no success. Our latest information gives us no reason to be confident that we will ever be successful in obtaining this information. I am, therefore, asking that the conferees here representing the Department of Health, Education, and Welfare help us to obtain this information.

In summary, I would like to make the following points:

1) We know and have known for several years that there is a minor pollution problem in this section of the Snake River and we submit that the report of the Public Health Service, dated December 6, 1963, does not add materially to our knowledge of this problem. The same thing might be said for the holding of this conference.

2) We intend to complete our cooperative study with the State of Washington and, following the completion of this study, to take such abatement actions here in Idaho as we deem appropriate and necessary.

3) We do not believe the present problem is significant when compared to the problems which will occur when slack water comes to Lewiston. Our efforts in this regard will be affected materially by whether or not we are able to obtain from some federal agency information regarding stream flow characteristics expected to occur following construction of the downstream dams. No final plans for necessary and adequate waste treatment facilities can be made until such information is available. We urge the

Department of Health, Education, and Welfare to obtain this information for us at the earliest possible date.

MR. STEIN: Thank you, Dr. Carver.

Are there any comments or questions?

MR. HARRIS: I do not have any questions at the present time, Mr. Stein.

MR. STEIN: I don't have any questions. By the way, I think this was a very good statement.

You mentioned that you meet this conference with somewhat less than overwhelming enthusiasm.

This is for the record, and I would like to make a summary of these points. The reason that our report was dated in December and the notice of the conference was in August was a very simple one. This has prevailed throughout all of the conferences that we have held.

We give as much notice as possible in the calling of a conference. At the same time, the report is a working document for the conferees. We strive to present the latest information. Many times, where a several month period has elapsed from the calling of the conference, a report is prepared and there are some changes.

This is done by design and it has to be done by design. More than 1,000 industries and a like number of cities are covered in these conferences.

DR. CARVER: Mr. Stein, may I interject and ask you a question?

MR. STEIN: Yes.

DR. CARVER: Is it done by design that the conferences are called even almost before the studies have been done?

MR. STEIN: No. I think the law is very plain on that.

DR. CARVER: Well, I think the letter of the Secretary was quite plain in the fact that he stated -- and I think I am quoting him correctly -- that his information was that these studies had been made.

MR. STEIN: No, I don't think that the law says that. I don't have a copy of it here, but it says --

DR. CARVER: I don't think the law says it either.

MR. STEIN: Just a moment, please. I will tell you what the law says. It says, "The Secretary of Health, Education, and Welfare is required to call a conference of this type, when on the basis of reports, surveys or studies he has reason to believe that pollution of interstate waters subject to abatement under the Act is occurring."

You assume that the reports, surveys or studies was the same report as we submitted to the conference, and that never has been the case.

T. O. Carver

In our relationships with all of the States, including the State of Washington and your State agencies, in the numerous conferences we have held, and in the national meetings of the water pollution control administrators, this has been explained many, many times.

I don't know that the Bear River conference is pertinent here, but I would suggest that if anyone is interested in the statements made at that conference, he best look at the transcript of that conference for identification as to who made which statement. I think that record is abundantly clear in itself.

There is one point here I find a little difficulty in understanding. Among other things, you say the State of Idaho has made tremendous progress in the cleaning up of the streams. Later on, I think a list of five or six points is given. The last point here is that the State of Idaho has carried on a successful public information program. I am sure this has been done. Here Idaho has made tremendous progress. They have carried on a successful public information program, and they have gotten this across to the people; just for the calling of this conference, it might be interpreted by many as indicating that in some manner the people in Idaho have failed, and that Idaho and Idaho's water pollution program is incompetent, lethargic or stupid.

In the face of this excellent progress and wonderful public information, I really don't understand how our calling of a conference can create this impression. That certainly was not our intent.

DR. CARVER: We appreciate your very kind remarks on that point.

MR. STEIN: You also quoted several points from the report. In going into this conference, we try to introduce facts from all sides. We are not out here to prosecute a case. This is not an adversary proceeding. The statements fall as they are.

These statements certainly have been taken from the report, but I think that the conclusions of the report were there too.

DR. CARVER: May I interrupt before you go on?

MR. STEIN: Yes, sir.

DR. CARVER: You have indicated this was not an adversary procedure. I certainly concur in that. I have already heard mention several times, however, that this is the first phase of the federal agency's enforcement procedure.

MR. STEIN: That is what the law says.

DR. CARVER: Yes. I just wanted to make that point.

MR. STEIN: That is exactly right. The law is very clear on this.

I might also point out that almost all of these cases have been solved at the conference stage. Very few have gone beyond that.

The next point I would like to mention is this: When you try to get information on future stream flows, after the impoundments have been constructed, we all have a problem on this. We would really like to help.

You state in your report: "Our latest information gives us no reason to be confident that we will ever be successful in obtaining this information. I am, therefore, asking that the conferees here representing the Department of Health, Education, and Welfare help us to obtain this information."

If you don't believe we are ever going to give it to you, why are you asking us to get it?

DR. CARVER: Well, perhaps I can clarify that by saying that certainly on the basis of the information that I have received this morning pertaining to this conference, I did not get any confidence that this information might be available in time for us to really do good planning.

MR. STEIN: I suspect that it will. If it does not, the procedure falls down. I am as anxious to get this as you are, as early as possible, and you appreciate that.

I am sure there is no disagreement on this. In the planning of this, we have to get all of the questions that involve both States with respect to the change of flow patterns or other effects of these impoundments. Unless we get this information, the State of Idaho, the State of Washington, or we cannot really make intelligent comments on the planning. You don't know whether to be for it or not.

I think the push here is to get the information. I will not put this as a conclusion of the conference, but I suggest that we certainly look into this and get it.

DR. CARVER: Mr. Stein, may I perhaps suggest this idea: That there be called a conference between the Department of Health, Education, and Welfare and the Corps of Engineers on this point. If the conference technique is effective, we would like to see it.

Perhaps this is a device for getting the information.

MR. STEIN: We will have no trouble in exercising that with the Corps of Engineers. We appreciate the suggestion.

DR. CARVER: I was thinking more in terms of a public type conference.

MR. STEIN: That would be agreeable to us.

You have to recognize that in these impoundments the prime agency is the Corps of Engineers, and not us. We are serving as advisors to the Corps on water quality.

The determination of what will be done in public meetings in relationship to these impoundments, and plans for them, necessarily have to be made by the Corps of Engineers, and not by the Department of Health, Education, and Welfare.

I want to mention one last point. If there are any federal installations still remaining in Idaho that do not have waste treatment practices, I wish you would let us know, and let us know specifically.

DR. CARVER: Could you assure me, representing the Department of Health, Education, and Welfare, that if we bring those to your attention, you have some power or authority to see that this is rectified?

MR. STEIN: Yes, I can. We have the authority in the law.

DR. CARVER: This is not just recommendatory?

MR. STEIN: Well, it is recommendatory, but it is pretty strong. If you cannot work this out on a local basis here, you report this to us, and we will take this up with headquarters of the agency involved in Washington. If that is not satisfactory, then it is reported to the Congress.

At the present time, I think the Committee on Government Operations seems to have this as one of its pet projects. I can assure you, every time we report one of these to the Congress, action is taken pretty rapidly.

DR. CARVER: This would be taken at the headquarters level?

MR. STEIN: Only if you can't work it out here.

DR. CARVER: Of course, there are certain federal installations here in Idaho which we, as state representatives, actually have no authority to enter upon.

MR. STEIN: If you have any problems with that, relating to waste, get in touch with us. If you have legitimate business on a federal reservation relating to waste disposal or carrying out a State function, we would be glad to help you with that.

You can appreciate that we have to have specifics. To give you the philosophy on this, we have a local federal installation. We would prefer for you, your local representatives, and the person in charge of the federal installation to work this out yourselves, without having to come to Washington.

The only time we would want this referred to Washington would be if you had the feeling that progress was not being made locally.

DR. CARVER: And this is precisely the point, sir, on which I took issue with Mr. Towne in his statement.

MR. STEIN: I don't have any further comments or questions.

MR. HARRIS: I have no questions.

MR. STEIN: You may have some further statements, but the suggestion from the other conferees is that at an appropriate point, before the discussion and conclusions, we might consider adjournment.

DR. CARVER: Certainly.

MR. STEIN: Are you in favor of that?

DR. CARVER: I am in favor of it.

MR. STEIN: We will stand recessed for precisely one hour. I suspect we don't have much more to go, and we should have about another hour at the most of business.

(Whereupon, a luncheon recess was taken from 1:00 p.m. until 2:00 p.m.)

Closing Statements

MR. STEIN: This Board would like to reconvene. We have concluded the presentations of both the state agencies, the Department of Health, Education, and Welfare, and the other organizations.

At this point, we would like to entertain a discussion from the conferees, and then we will attempt to conclude. Do any of the conferees want to start the discussion?

MR. POSTON: I would be glad to volunteer.

MR. STEIN: All right.

MR. POSTON: A point has been made here that certain information on the operation of proposed dams would not be available in its final form until 1969. I would like to point out that the information needed to design treatment works is not dependent upon those refined operating details.

I think that the Corps of Engineers at the moment can tell us what the elevations will be. They can give us the range of fluctuations in flow that will occur, and if we properly design our treatment works they will take care of the most unfortunate situations that we can anticipate.

With that basic data, I think it would be possible, and I am open to correction here from the other conferees, that that would be adequate to design a program for the future.

I feel that we have here, and this has not been repudiated by any of the conferees, a matter of pollution in the Snake River in Lewiston which should be abated. I propose that we, as conferees, establish some time when this program of correction could be inaugurated. I don't believe that we can go along and ignore it until some future date. In view of the experience that we have had in this matter, where we have studied it over long periods of time, the inauguration of an abatement program is a wise course of action if we are going to correct this situation.

I would like to make the following recommendations for the consideration of my fellow conferees:

1. That the State and the Public Health Service conduct a joint study of bacterial pollution in this area so that we may come up with plans for additions to existing sewage treatment plants that will take care of the situation now, if necessary. It would also give us the picture of what we should do in anticipation of the closing of the Granite Dam.

MR. STEIN: As far as these studies and recommendations are concerned, do you have any idea when the studies should start and how long they will take?

MR. POSTON: I think it should be undertaken this coming summer, in the period of low flows, which seems to be the critical time. Not only do we have a local problem, but we have maximum use of the river for recreational purposes.

MR. STEIN: The next point is, when do you think the report should be in?

MR. POSTON: I would think that September 15th it should be in. This would allow for variations in flow, assuming we would have a high flow in August.

MR. STEIN: In other words, the report should be finished by September 15th?

MR. POSTON: I would think so.

MR. STEIN: I have one more question on that. Do you think this kind of study could resolve what slight problems we might have on the bacteriological odors, where some readings would be higher than others?

MR. POSTON: I am sure that there will be a study plan outlined in advance of the actual study, which would make provision whereby we would take duplicate samples in order to provide agreement on the results.

MR. STEIN: Perhaps I don't make myself clear. I don't think this problem that you have had has resulted from a lack of technique, or is one to be solved by split samples.

If you people don't understand what split samples are, sometimes there is a disparity in sampling. The way we would solve that is to take a sample, give one group part of the sample and the other group part of the sample. They then go off independently and come up with the results in a laboratory. If they come up with markedly different results, you know that there is a defect in one or both techniques, and we begin looking at it.

I am not sure that the disparity you talk about here can be handled by the split sampling technique. I don't know. Do you think that a study of three weeks, or less than a month's duration, would allow everyone to come up with a reasonably uniform position on the bacteriological condition of the river?

MR. POSTON: I think this would show the facts we have established here today. I believe there are standards of acceptance to the Public Health Service that were promulgated by the states. I believe this is just a matter of seeing whether the conditions we find in the river meet those standards.

MR. STEIN: I think we have to find what is in the river. This should be a relatively easy thing to prove. There are certain material conditions in the river, particularly with relation to bacteria, which are susceptible of measurement by standard methods. We should be able to find out what is going into the river, what the bacteriological loadings are, and agree among all the agencies on the number.

Then the question is if, as was pointed out by the representative from Washington, you wanted to apply their criteria, that is fine. This is another question, and this I might argue on, but I think that there should be no argument about the count in the river.

MR. POSTON: This is what we are going to solve.

MR. HARRIS: May I interrupt for a moment?

MR. STEIN: Yes.

MR. HARRIS: I believe I outlined in my statement this morning the joint study that has been agreed upon by the Idaho Department of Health and our Washington State Health and Welfare Commission, which includes two phases to be conducted, normally in the spring and summer months this year. It was mentioned in my statement, and I think in another statement, that we would enjoy an additional party to this survey, which would include the U. S. Public Health Service, particularly on the bacteriological examinations.

If that is what you are proposing, that you join with us in these phases, then I think that we should again sit down as technical people and agree upon the standard method of procedure which we shall use. We should utilize the same procedure, not utilize different procedures, with things that are documented as being recognized.

I cannot speak for Idaho, but as far as Washington is concerned, we are very much in agreement that you should join with us, and that we should have prior agreement as to the techniques and procedures to be employed.

I would like to make one other point. When Mr. Stein asked when the report could be finished, the date of September 15th was mentioned. I think that is a little bit premature. I would like to push that back to the tail end of the calendar, at least a couple of months.

MR. STEIN: In other words, you would say that this is a little short?

MR. HARRIS: Yes.

MR. STEIN: The date mentioned was September 15th. Do you think you would have enough leeway by making it January 1st, 1965?

MR. HARRIS: Yes, without a question.

MR. STEIN: Is that agreeable to you?

MR. POSTON: It is agreeable.

MR. STEIN: It is agreeable to Mr. Poston.

DR. CARVER: Mr. Chairman, before going on, I didn't know whether you were assuming by the fact that the Federal agency and Mr. Harris had agreed to a date, that my silence might be interpreted as acquiescence.

MR. STEIN: No. We didn't assume that at all.

MR. HARRIS: I meant no such interpretation.

MR. POSTON: The second resolution or recommendation concerns the State of Idaho's responsibility for the pollution coming from industries in Idaho, that they make known their requirements as to what should be done to clean up this pollution that we find in the interstate sections of the river.

Speaking of the paper mill, I would suggest that they consider that the B.O.D. of these wastes be reduced to not over 20 pounds per ton of capacity. This means removing all settleable solids from the effluents and removing all odor producing substances from the effluents.

The third recommendation would be that the State of Idaho come up with their requirements for the Seabrook Farms Cannery. These requirements should include the removal of all settleable solids and a minimum B.O.D. removal which is equivalent to that required as to the municipal wastes.

The fourth recommendation would be that the State of Washington come up with their requirements for the two meat packing plants. The requirements should provide that all settleable solids be removed and the minimum B.O.D. removal would be that required from the municipalities.

Those are my recommendations that I throw out for the consideration of the conferees here.

MR. STEIN: Do you have any suggestion about the municipal wastes?

MR. POSTON: No, I don't. I think that we need to carry out this bacteriological study which I have mentioned. Of course, we must anticipate what is going to be required when the dam is closed, and that will be a different situation.

MR. STEIN: Let me see if I understand that. In other words, with relation to municipal wastes, you are saying that you are not at all sure but that what they are doing now is not adequate?

MR. POSTON: Yes, sir.

MR. STEIN: But this can be detected after the bacteriological studies are completed. In other words, as indicated, presumably this group would come up with a recommendation from Idaho and Washington if -- and I would say this may be a very big "if" -- there is a requirement that municipal wastes have to be --

MR. HARRIS: May I discuss that?

MR. STEIN: Yes.

MR. HARRIS: I do not wish to see this requirement of additional municipal waste treatment tied in with the bacteriological requirements as are found in our studies this year, for the simple reason that we will be studying the natural flow of stream conditions, and not projected stream conditions which might be imposed by impoundment.

To augment this same thinking a little, and, in addition, we have discussed with Idaho representatives and ourselves, and we are pretty much in agreement, that if we believe that the impoundment will create a condition which will impair recreational use of the waters, we are then bound to go back to our respective towns and ask them to increase these treatment facilities.

I can also state that our two towns on the Washington side of the river are perfectly cognizant of the fact that they may have to do this. I believe that they have both done some thinking in this respect, and, there again, it comes back to this sort of a big question mark as to what is going to happen to the river conditions when the dams are built.

As I say, I do not want to pinpoint that the bacteriological conditions confined to this summer and fall will determine whether or not these waste requirement treatments will be increased.

MR. STEIN: I might make one point. I don't know that this was brought out in detail. As I understood, the

Health Department of Washington talked about certain criteria.

It would seem to me that the conditions of waste that we have on the lower Columbia just do not relate to the bacteriological conditions you find in the water. For example, if you utilize the salmon for the objective of criteria, why, you may very well have a situation where you may have one view on treatment of waste, which you would not have if you adopted other criteria.

I think again that the notion as to what you are going to require would very much be related to the criteria you are going to use, and the bacteriological situation would be just a base line.

The bacteria will undoubtedly give us a firm figure of what is in the river now, presumably based on a determination of the technical people. However, a determination should be made of what will happen when the dams come in, and it should be evaluated on that basis. Or else, make a determination on the basis of objectives to be put in by both states accounting for water problems they want to eliminate. This bacteriological data though will be just a base for the state agencies to make a view in any direction.

For the purpose of clarification, you have made several suggestions with relation to industrial wastes.

Idaho made known its requirements of industry, and suggested not over 20 pounds per ton of capacity of B.O.D. and removable solids. We also have a requirement on Seabrook Farms in Washington and both the meat packing plants.

I am talking in terms again of setting a time when you think this should or could be done.

MR. POSTON: Well, this is a matter, I think, the states should answer. In the public interest, it ought to be as soon as possible.

MR. STEIN: When do you think would be reasonable?

MR. POSTON: They have other things to do, I realize, but it seems like this could come up within eighteen months.

MR. STEIN: You mean the requirements?

MR. POSTON: The requirements, yes, just to establish the requirements.

MR. STEIN: Just to establish the requirements in eighteen months.

MR. POSTON: Maybe it could be done sooner.

MR. STEIN: Obviously, it will be a considerable time after the requirements are established for the remedial work to be put in.

MR. POSTON: Well, I believe that was brought out at the conference, that some remedial work is now under way.

MR. STEIN: The point I am getting at is, once the requirements are established, most people would like to know within a reasonable time when it can be expected that certain requirements will be met.

MR. POSTON: That is a very difficult question to answer with the variables involved. The industries will undoubtedly want to make studies, and, depending upon who they got to make them, it would not take very much time, but I would think that the requirements ought to be established in eighteen months.

MR. STEIN: And at that time each state would establish a reasonable time for compliance?

MR. POSTON: Right.

MR. STEIN: I think I now understand the proposals.

Do you have any comments, Mr. Harris, on these proposals?

MR. HARRIS: With regard to the detailed proposal that Mr. Poston made in so far as the pulp and paper industry here is concerned, I would like to have the opportunity of discussing this with members of my staff, without saying "Yes" or "No" to the reasonableness of this type of proposal.

With regard to our Washington industries, I would consider eighteen months as a very reasonable period of time in which to secure corrections, with one exception: The packing plant on the lower area, down river, will be very materially affected by the impoundment, and we would hate to impose something unrealistic which would have to be changed at the time the dam was put in.

I think this is a question we would like to look into a little more carefully.

MR. STEIN: I think that is understandable with regard to Mr. Poston's proposals. I can appreciate that.

As a matter of fact, I went out to visit the site yesterday with a couple of these people and saw that. But I think the notion is that in eighteen months you can come up with something.

Do you have any comment, Dr. Carver?

DR. CARVER: I am not really sure whether I have a comment or a question.

I would like to begin my remarks by saying that this is the first time I have heard these proposals of Mr. Poston, as just put forth. I must admit that after hearing the proposals in a room which is not noted for its acoustic qualifications, and hearing some of the purported explanatory comments, I am just plain confused at this point.

I have heard something about a September 15th date, a January 1st, 1965 date, or an eighteen months date.

Eighteen months from when, I don't know. As I say, this leaves me somewhat confused.

I have this one question to ask Mr. Poston: Do all of his suggestions with respect to dates include the supposition that the information with respect to stream flows, some kind of reliable information with respect to stream flows after the impoundment has been created down stream, will be part of it? Or, are we talking solely about cleaning up something now, without regard to what the stream flows will be later on?

MR. POSTON: I think we have two problems here. One is the immediate problem of downstream water use which would be impaired by pollution. It is incumbent upon us, in whatever way we can, to eliminate that.

We also have a long term objective in which we expect to plan for the future, so that when the impoundment is made we will have the works at least on the drawing boards, so that there would be a minimum of delay and a minimum of damage to that pool. I think we have, as I stated earlier, access to sufficient information for design purposes to know this.

I think I would like to ask Mr. Rockwood of the Corps of Engineers, do we not know the pool elevation?

MR. ROCKWOOD: Yes, sir. I would like to comment on that, if I may.

DR. CARVER: Before you do, sir, I would like to make one point clear, and that is when Mr. Poston is referring to "we," he is not including the State of Idaho.

MR. STEIN: Go ahead.

MR. ROCKWOOD: This implication that the Corps of Engineers will not know what the flow condition will be until 1969 is erroneous. What I was trying to point out was that the combination of all studies will result in the publication of a manual at a time before the dam is in actual operation, which will define in absolute terms exact conditions of flow regulations.

But, in the meantime, these studies are going on now, as of today, and have been for several years, since planning was started on Lower Granite Dam, and they are coming in piece by piece.

This information is available, and I am sure it is available to any group that wants the results of these studies.

Finally, as a clearing-house of this type of information, I think that a group can utilize the Columbia Basin's inter-agency committee and, particularly, the subcommittee on water quality and water pollution, to air their needs and ask for information which is currently under way, and thereby speed up the whole process.

I believe that this is really the gist of what we are trying to get at, that this information is available, but only that a final published document will be made at the time stated.

MR. STEIN: I think we understand that. The point was that there was sufficient information available to not only make plans for present treatment, but to project future waste treatment now. I think we can proceed under that assumption.

DR. CARVER: Now, I want to raise one more question.

MR. STEIN: All right, but let me finish.

I think we can proceed under that assumption. This is a technical point. It seems to me that if our technical people, like Mr. Poston, think that, and the Corps thinks that, I am sure your technical people either will come to a judgment on that or not.

If we can proceed on the assumption that that material is available now, we will get it. This is one of the assumptions we have, to design present and future waste treatment facilities based on elevation of the impoundment, based on stream flows and peaks and low points of the fluctuation. That is sufficiently precise.

Again, it seems to me that this is a point for a technical group. If this is not forthcoming to satisfy your technical people, or if one of the assumptions fails, then we have to go back. But this proceeds on the assumption that that will be available.

DR. CARVER: I will only make this comment. I think at this point and time, that is quite an assumption. I wonder if you would be willing to guarantee it.

MR. STEIN: This question has just been raised for the first time for me. The point is, the word of the people we have here, Mr. Poston, probably Mr. Towne, and representatives of the Corps of Engineers, is good enough for me.

I don't know certainly whether I am in a position to make any guarantees about something that technical people tell me. I will back up technical people, as I have always backed the Corps of Engineers.

If this assumption is not warranted, then we do not have to proceed, but all of the agreements are based on this being forthcoming. We know the technical people on your staff. We have never found them, on technical matters, to have any differences with the people on our staff or the Corps of Engineers.

Either you are going to have enough information or you are not going to have enough. Our people say you have enough, and any agreements that will be made will be based on that assumption. If you do not have enough, either we or the Corps or someone will have to go out and get some more.

DR. CARVER: Well, I don't know whether I am pressing a point here that is too technical or not. There is something about this that bothers me a bit, however.

The point that I think I would particularly try and make in my presentation this morning is that we feel strongly in Idaho that before we can do a good job of planning and developing the necessary criteria in order to tell both industry and the communities what it is they ought to do, we need to have this information about the stream flow characteristics. In other words, we want to go at this thing both in terms of the present stream flow or anticipated stream flow, or lack of it, whichever it might be.

MR. STEIN: Dr. Carver, I appreciate what you say, and I fully agree with what you say. I couldn't agree with you more on it.

However, let me say this, just to get this going: Evidently, the Corps of Engineers, our representative, Mr. Towne, who is working with the Corps of Engineers, and Mr. Poston think that this material is available. If the material is not available, this judgment will rest with the states concerned, either Washington or Idaho, to tell us this is not available, to tell us what is not available, and what specifics you need for planning. We will then make every effort to get that immediately, recognizing that this is a prerequisite.

The judgment on whether this is sufficiently particular to justify planning for present and future water treatment will rest with the individual state representatives of Idaho and Washington. All you have to do is tell us it is not particular enough and furnish us with a bill of particulars, and we will make every effort to make the particulars available.

DR. CARVER: Well, let me just mention one other point then, and that is simply this: That whether or not this information does become available, I want to make it perfectly clear, as I did in my statement this morning, that we intend in Idaho to complete our cooperative study with the State of Washington, and, following the completion of this study, to take such abatement actions here in Idaho as we deem appropriate and necessary.

In other words, I am saying that our actions are not going to be limited by any proposals that might come up in this session.

MR. STEIN: We hope not.

Closing Statements

At the present time, I think I can summarize these proposals and see if there is agreement by all parties.

The proposal was that both states and the Public Health Service engage in a joint cooperative study of bacterial pollution in this area during the summer, this study being handled by a technical committee, with representatives appointed by the three agencies, and a report to be prepared and completed and made available by January 1st, 1965.

(2) That within eighteen months, Idaho make known its requirements relative to industries in Idaho discharging wastes in this area, with a requirement in relation to the pulp and paper industry at the Potlatch plant that not over 20 pounds of B.O.D. per ton of capacity be discharged into the stream, and that there be substantial removal of all settleable solids and substantial removal of odor producing substances from the stream; that the same requirements be made available in eighteen months as far as the Seabrook Farms is concerned, comparable to the B.O.D. production accomplished in municipal wastes, and with substantial removal of all settleable solids within eighteen months.

(3) That Washington will, in relation to its meat packing plants, come up with a proposal on the B.O.D. comparable to its municipal wastes and come up with a proposal containing remedial requirements, with substantial

removal of all settleable solids, with the understanding that the plant farthest downstream may be in a peculiar position because of the proposal. We all recognize that it would not be wise to necessarily put them to the expense of going into extensive waste treatment.

I think these are the proposals and, as I understand it, Mr. Harris, you substantially agree, but you raise a question on the 20 pounds of B.O.D.?

MR. HARRIS: I do raise that question.

MR. POSTON: Mr. Chairman, I am in receipt of some information just handed me. We have some technical people in the audience. They say that 20 pounds is unreasonable, and I am going to change my position and go along with Mr. Harris, leaving this up to my technical people who are more informed on the matter of treatment of industrial wastes than I am.

DR. CARVER: Mr. Chairman, before going on, did I hear you state any date with respect to this proposal?

MR. STEIN: Yes, eighteen months from now. As I understand, that is Mr. Poston's proposal.

MR. HARRIS: Mr. Stein, I would like to hear from Dr. Carver on the point of the discussion with regard to removal of material by the pulp and paper plants, and what the attitude of the State of Idaho is in that respect.

DR. CARVER: Well, Mr. Harris, I am not sure I understand. Would you repeat your question again, please?

MR. HARRIS: The question that I had raised originally, when Mr. Poston presented a numerical reduction, was that I stated that I would like to discuss it with my technical people before I agreed to any conclusions.

Subsequently, Mr. Poston said that he would withdraw that, with regard to a particular numerical value, until he in turn had a chance to discuss it with his technical people.

I would appreciate an expression from you on the desirability of this type of a conclusion, and your thinking in this regard.

DR. CARVER: If I understand your question correctly, sir, I think that the best way that I can answer it is to say that the Board of Health of Idaho has already established water pollution control regulations which provide for the elimination of all settleable solids. Does that answer it?

MR. HARRIS: Not entirely.

DR. CARVER: That isn't something that has to be done in eighteen months. It has been on the books for some time.

MR. HARRIS: With the reduction of B.O.D. to a certain value --

DR. CARVER: Well, in that case, it seems to me that what has happened here is that the subject has arisen, and, rather properly, the two parties have decided here that they ought to refer this to their technical people. Maybe I would be smart to do the same thing.

I would, however, say that I understand the basic philosophy of the State Board of Health in Idaho, in its water pollution control program, is not in terms of establishing certain specific figures on, say, B.O.D. demand, but rather it is all encompassing and, I think, more general, in saying that the water should be such that it is available for a multiple beneficial use, without going into specific figures.

MR. STEIN: I don't know if we are off base. I think the only point that both these people wanted to refer to was a specific number of 20 pounds per ton of B.O.D. I don't know the number. I am certainly not competent to figure that, but the principle is the same.

As I understand Mr. Harris's question, he was wondering what your attitude would be of making known the requirements of the pulp and paper industry, and what reduction you would require them to make, if any, in the discharge which produces a biochemical oxygen demand and odor-producing substances, and whether you would make that known by the criteria your technical commitee could use, within eighteen months.

DR. CARVER: Well, I will try to answer it again. This time, instead of answering it from, shall we say, a technical standpoint, I am going to answer it from a medical standpoint.

It is my opinion that it is fairly common wisdom, if you will, to assume that there is some magic in numbers. I think somebody once said that the proper temperature for the human body is 98.6 degrees Fahrenheit. A lot of people assume that if you are not, as an individual, right at that point, 98.6, there must be something wrong with you. I submit that this is a matter of delusion, and there are people who are normally below that figure and there are people normally above that figure. In actual fact, 98.6 is a pretty rough kind of an average.

What I am leading up to is this: That in my opinion it would be much more useful and beneficial to decide what the treatment was going to be used for, and what the conditions of that stream are going to be, and then work towards those, without struggling with the numbers game.

MR. STEIN: Maybe I just don't understand you.

As I see it now, Dr. Carver, the only thing we are talking about is Idaho with relation to numbers. The only number we are talking about is whether you can come up with this in eighteen months.

As I understood Mr. Poston, the number of 20 pounds, or any number, was withdrawn. What he recommended was that within eighteen months Idaho make known its requirements for the Potlatch industry. You have already mentioned the substantial removal of all settleable solids. There must be a few fibers sneaking out somewhere.

And, by the way, this should not be construed as a derogatory remark, because I know of no pulp and paper plant in the country that doesn't have some type of scum coming out.

The point is, the recommendation is that within eighteen months you make your requirements known concerning that industry.

DR. CARVER: Mr. Stein, may I ask you this question. Is there something magical about eighteen months?

MR. STEIN: No. Do you want to change it?

DR. CARVER: I am curious to know, sir, why there is this effort being made to establish certain time limits. Is there something in the law that says that we have to come up with certain definite time limits on certain things?

MR. STEIN: No. However, I think that if we do not talk in terms of time limits we tend to get off into a never-never land. If we let this continue indefinitely, all the good people out here are not ever going to be able to have some kind of an indication whether we, as public officials, are doing our job.

The best type of check is to set up a time when you are going to come up with something, and if there is a good reason why you can't meet that time limit we will let them know. However, it seems to me, generally speaking, that when we don't set time limits in dealing with pollution problems, things tend to go on forever.

DR. CARVER: That may very well be, Mr. Stein, but I would like to point out one other thing to you. That is the fact that I, as a conferee here, am not a totally free agent. I am responsible to the Board of Health and, so far as I know, the Board of Health has not yet anyway had the opportunity to consider this matter.

If there is to be a time established, I'm afraid to say that this is going to have to be done by the State Board of Health itself.

MR. STEIN: Dr. Carver, I recognize that position. This is precisely the position that Idaho took in previous conferences we had at the Bear River.

The question that I am putting out before the conferees is to get their reaction with regard to Mr. Poston's proposals. If the Secretary makes a recommendation afterwards, he generally could be helped by the discussion amongst the conferees, recognizing, of course, that as conferees you certainly can't speak for your boards any more than I can definitely speak for the Secretary of Health, Education, and Welfare.

I do know this: That whenever the conferees have come up with a suggestion in the past, we have had many Secretaries who have invariably adopted it. I also know that when the Secretary has to determine whether there is progress, the only measure the Secretary can make for himself successfully is to place a time schedule, as he always has.

Obviously, Idaho or the Board can do what it wishes to get a time schedule. I am just trying to see if I can get a guideline for the Secretary.

MR. HARRIS: When my friend, Dr. Carver, referred to playing this numbers game on the water quality standards, it left me with a little bit of an uneasy feeling. I concur in the statement made that we had to know what the use of the stream was going to be.

The only thing is that I would like to again quote from my statement, which is more or less the policy of the

State of Washington. We are interested in maintaining the highest possible standards of these waters, consistent with known methods of control.

To go back a little bit, we operate in the State of Washington under what is known as the permit law, under which all of our industrial establishments are given permits, including the pulp and paper industries, so that we have a fairly good knowledge of what are the reasonable methods of elimination of settleable solids and what they will be. In our permits we try to establish these standards which we believe are reasonable, and we do it in negotiations with the mills.

We, as downstream people in the State of Washington, are speaking for the sportsmen and everyone that uses the water. We are interested in knowing that all available methods of control are used to reduce the solids in the river. I am sure that within our experience, at least, we are quite reasonable in establishing numerical values for these particular mills, but we have to know each mill and the possibilities under which they can operate.

That is why I made the statement that I would not like to come up with a figure at the moment, but I want to leave the impression that we do want to see, with regard to these mills, a reasonable and known method of controlling their solids.

MR. STEIN: I think that is a fair statement of the position as expressed by Mr. Poston. Do you agree to that?

MR. POSTON: I think so. I would like to state here that what we suggested was that in eighteen months the State of Idaho come up with their requirements. These other things, as to what they should do, were merely suggestions on my part. Apparently they have been adopted by Mr. Harris. But the main point in this statement is that the State come up with their requirements in eighteen months and state what they want to do. Then I propose that we go ahead in another two years and get this construction completed, so that we can actually show some definite progression in the pollution control activity.

MR. STEIN: Mr. Harris, when you were talking about that meat packing operation, did you figure it would be eighteen months when you would have the situation under control, and not two years?

MR. HARRIS: No, sir. I stated that we will work with the objective of having control within eighteen months.

MR. STEIN: Within eighteen months?

MR. HARRIS: Yes.

MR. STEIN: We will take a ten minute recess at this time.

Closing Statements

(A short recess was taken.)

MR. STEIN: May we reconvene?

Let's see if we can state these proposals in a concrete way for the record. Does anyone want to say anything, or shall we take up the points together?

The first point is that both states and the Public Health Service engage in a joint study of bacteriological pollution of the Snake River in the Lewiston-Clarkston area this summer, and that we appoint a technical staff to determine what is to be covered in this study in order to establish agreement. The report of this study is to be completed and made available by January 1st, 1965.

Is there any disagreement on that?

MR. HARRIS: One comment in regard to that. I want to make it clear that in so far as I am concerned, and I will leave it up to Dr. Carver to concur, we are suggesting that the Public Health Service join us in our study of this. However, this has already been outlined and is already a going concern for this bacteriological work, as I mentioned in my presentation before, because we have had this joint Idaho-Washington study going through these three phases.

Now, I didn't want to leave the inference that this is something new and different that has been the result of this conference. It is something that we are adding to, you might say, as a participating agent.

DR. CARVER: I would like to say this: We intend to complete our cooperative study with the State of Washington. Certainly, if the Public Health Service wishes to join us in this cooperative study, and if the Public Health Service has something to add to it, this will be very fine.

MR. STEIN: Is that accepted by both of you?

MR. HARRIS: That sums up my thought on the matter.

MR. STEIN: In view of that, I think, for the Federal Government, we would be most happy to join with the states in the study this summer, and we can agree on a report as of January 1st. That is the date you suggested.

DR. CARVER: That's right.

MR. STEIN: Is this agreeable with you?

MR. HARRIS: That is agreeable with me.

MR. STEIN: Is this agreeable with you, Doctor?

DR. CARVER: If this cooperative study can be completed and finished by January 1st, 1965, which is actually under way, this would be a very desirable thing, I would think.

MR. STEIN: I can see we are getting very definite on this. That recess, no doubt, helped a lot.

The Public Health Service and the Department will join with both states in their study. We would hope that we can come to an agreement with the technical staff by 1965.

However, I would make this proposal to the Secretary: In the event that this cannot be done, the Public Health Service will get the material, and we will make it available in the report by 1965. However, we hope we will be able to join with the states in coming up with a joint report.

As to Recommendation Number 2, I understand that Idaho cannot agree to this because they have not consulted their board. Recommendation Number 2 is that Idaho make known its requirements with regard to industry with reference to the discharges into the Snake River in the Lewiston area within eighteen months, these requirements taking into account B.O.D. discharges, settleable solids and odor producing substances. After the eighteen month period, a reasonable time, perhaps two years, will be given for industry to comply with these requirements.

Is there any comment? I understand that Idaho cannot necessarily agree with this.

The other portion of this recommendation is that within eighteen months they come up with the same time schedule for compliance with respect to the Seabrook Farms, taking into account B.O.D. producing substances, and the removal of all settleable solids.

Washington has agreed that within eighteen months it will have remedial action under way for the upper meat packing plant. Could we have the name of that?

MR. HARRIS: Bristol, and the other one is Meats, Incorporated.

MR. STEIN: That will be done with relation to removal of settleable solids, B.O.D. and other deleterious substances from the meat packing plant, and this will be in operation in eighteen months with regard to Meats, Incorporated. Within the eighteen month period a determination will be made whether these remedial measures will be effectuated by the plant, or whether, in view of the changes that are recommended, this might be deferred because putting waste treatment in might result in an economic hardship to the industry.

DR. CARVER: Mr. Stein?

MR. STEIN: Yes.

DR. CARVER: In order that there not be any misunderstanding, I would like to say that the point which I would feel bound to refer to the State Board of Health has to do with the eighteen month deadline.

Again repeating something that I said this morning, I do not believe there can be any doubt about the fact that the Board of Health is proceeding, and has been proceeding for some period of time, in a very active and aggressive water pollution control program, and that this will continue under the direct guidance and supervision of the Board of Health, regardless of the fact that this conference was held or that the Secretary might subsequently set such a deadline.

MR. STEIN: The summary will also show that the report of the Department of Health, Education, and Welfare indicates that waste is discharged into the Snake River from several sources in the Lewiston-Clarkston area. The waste discharges from Idaho are: The partially treated municipal sewage from the City of Lewiston; the untreated industrial and sanitary wastes from Potlatch Forests, Inc., pulp and paper mill; and the untreated industrial wastes from Seabrook Farms Company pea and potato cannery.

From Washington, the waste discharges are: The partially treated municipal sewage from the Cities of Clarkston and Asotin and the untreated meat packing wastes from Bristol Packing Company and Meats, Incorporated.

DR. CARVER: Mr. Chairman, may I say that I think that this should show that this information, or what you have just entered into the record, is related to the report, the study of which was made in August of this year, and may not represent the situation as it exists today.

MR. STEIN: This report is dated December, 1963.

DR. CARVER: The report is dated that, but the studies were made several months before that.

MR. STEIN: Mr. Poston, had you gone out to look at these plants at a recent date? We always have this problem in a pollution case. I remember the case where one of the border states, dealing with oil wells, was investigated. The Court had the case on a Friday, and asked the inspector when he was there. The inspector said, "I don't know." The Court said, "You don't know the situation that exists now. Case dismissed."

This is always a problem that we have in this. Would you say that to the best of your knowledge and belief the situation remains unchanged, Mr. Poston?

MR. POSTON: Except that the quantity of flow is different today.

DR. CARVER: I would say, sir, that to the best of my knowledge and belief there are certain parts of that that do not exist today.

MR. STEIN: This will be reflected in the summary.

MR. POSTON: I would like to ask: What parts are incorrect as of today? I believe that there are facts available that haven't been brought out. I have hinted at this two or three times. I believe that the Potlatch Mills have made some changes recently, and I would like to see that brought out here. If they question this, we would be glad to recognize any such information.

MR. STEIN: Dr. Carver can answer the question, as far as I can see. This is the summary period and we have to conclude sometime. We have seen the report of Idaho. I do not know that it contradicted any of this. If it is wrong, it is wrong, but this is your conclusion.

The significance of bacterial pollution will be determined, hopefully, by the joint study of the three agencies; if not, by the cooperative study of the States of Washington and Idaho itself, or by the Department of Health, Education, and Welfare, which will determine where we can go from there.

The study indicates that the Snake River waters in Washington carry high loads of suspended solids material, primarily wood fiber, and support several areas of sludge deposits. These conditions result from the wood fibers entrained in the wastes from Potlatch Forests, Inc., pulp and paper mill in Lewiston, Idaho. The discharge of these highly colored, odorous, and turbid wastes results in damage to the aesthetic value of Snake River waters in Washington.

These interstate pollution problems, according to our report, are subject to abatement under the Federal Water Pollution Control Act.

According to the report of the Fish and Wildlife Service, their investigation indicates pollution to such an extent that undesirable growths and deposits in the Snake River below Lewiston are a nuisance and a detriment to fishing and recreation. These undesirable conditions are objectionable and should be eliminated.

These are the conclusions of the reports of the Federal agencies, and I think it should be indicated that the State of Idaho evidently does not agree with this in many respects, as its report indicated.

Are there any other comments or suggestions before we conclude the summary?

MR. ORD: I am Mr. Ord from the Walla Walla District Corps of Engineers. The way the trend of this is going, there are certain questions that come up in my mind with regard to the activities of our District.

We would question the report from the U. S. Department of Health on the effects and the conclusions and conditions in this area. This report, as Mr. Towne said, should be with us the first of this year, but we are not particularly hurt by a few months slipping by. Now, what effect is this going to have on that report?

Closing Statements

MR. STEIN: Unless Mr. Towne speaks to the contrary, I can't see where this is going to have much of an effect on the report. We have an obligation which we have made with you and we will be glad to honor that. We honor our obligations with you, and that would be true whether we held this conference or not, the same way, I am sure, that the Idaho Board of Health conducts its business, regardless of whether we hold a conference or not. We will be glad to supply you with that report on time.

MR. ORD: What I would hope that is if there is a unanimity of opinion on the report, that is apparently going to come out.

MR. STEIN: I don't think the holding of this conference would change the situation on unanimity of opinion. Whether we would have had it or not, you would have had the same problem.

As I read the statute that we are both operating under, our report is taken and transmitted to the Congress. If anyone does not like what is contained in that report, whether it be a state, an industry, an interstate agency, a municipality, a group of people, or a private person, they can go before the committee of the Congress and present their views. I am sure they will find a very sympathetic audience.

Are there any other comments or questions?

MR. HARRIS: I may have missed this point, but has there been included in the summary that the presentations here today have practically all been concerned with the problem of water temperature, and the possibility of control of temperature with regard to influencing the stream for better fisheries conditions?

MR. STEIN: We did not cover that, sir.

MR. HARRIS: It has been covered in almost every presentation.

MR. STEIN: I think we can say in the summary that water temperatures concern present and future uses of the stream, and its effect on the streams used as a fish habitat. This will appear, and this is a very good point in the summary, if there is no objection.

Do you have a further comment?

MR. HARRIS: No further comment, except that I believe that it should be a considered opinion of the summary.

MR. STEIN: Again, I am just putting this forth because we have not had a discussion in relation to this. I would suspect that in the planning for the entire river being done by the Corps of Engineers, this question of temperature would be a factor to be considered. Certainly, in Mr. Towne's work with you as part of water quality management, I would suggest that in the reports on pollution control with respect to the industries we have discussed and possibly dealing with the municipalities, though I don't know if that results in a rise in temperature --

MR. HARRIS: Not necessarily.

MR. STEIN: I would suggest that in all reports on pollution control, in addition to the other factors we have mentioned, the question of effect of temperature on the Snake River be considered, as well as the other aspects.

MR. HARRIS: Well, we wish to insert that the Federal agencies responsible for planning these facilities give this very mature consideration.

DR. CARVER: I just have this one closing comment, Mr. Stein. The impression amongst those in the audience might be to the contrary, but I want to make it perfectly clear that I have enjoyed the meeting here today, and I want to make particular note of the very capable way in which I think Mr. Stein has chairmanned this meeting.

Thank you.

MR. STEIN: Thank you, Dr. Carver, very much. As Dr. Carver knows, I enjoy working with him immeasurably. As a matter of fact, this is the most fun we have. When we are not in enforcement operations, such as occurred in Los

Angeles a few weeks ago, the Arrangements Committee hit on the happy thought of arranging the seating of Dr. Carver and myself next to each other at the head table at a banquet.

By the way, I must say that was one of the most delightful banquets I have ever attended. I thoroughly enjoyed it.

I do say that for the Federal Government, we do appreciate the point of view and the philosophy of Dr. Carver.

Let me explain a little of this, because I think this is the way our Government works. I don't think either the Federal Government, the state, industry or a municipality can work without having the abrasiveness of another area of government running against them. I am sure we are a better bureaucracy because of Dr. Carver. Sometimes we don't know how we can live without him. We can't live without him.

MR. HARRIS: I can't say this as eloquently as Dr. Carver, but I have thoroughly enjoyed this conference, and, although this is my first conference of this type, I too appreciate the way in which Murray Stein has handled it. I think we are all going away with a feeling that we have a mutual problem, at least.

I also want to make sure that in the summary and conclusions we include the problem of water temperature.

MR. STEIN: That will be included. Thank you. That was an oversight on my part.

MR. POSTON: I might say that I have enjoyed this. To repeat Mr. Harris's words, we all do have this problem in our working relationships with the states, but on the whole I think we work very well.

I will take this opportunity to recognize the work that has been accomplished in Idaho in the past few years. As pointed out in the testimony here, this is the only reason they have a law which has some teeth in it, and they have an organization where they can really tackle these things. I think they made real progress.

MR. STEIN: I want to thank all the people in the audience for coming here and participating. Particularly for those who are not familiar with this, we do this, so to speak, in a fishbowl, and we say, "The public agency doing public business in a public manner."

There are no executive sessions. Nothing was hidden from anyone. There were no secret agreements or discussions. You saw all the rough edges. This is attributable, I think, to the states involved, who are willing to participate in something like this. I think too infrequently do we see political systems in action the way we have displayed it here today.

I want to thank all of you for coming and participating. I think we are closer together, and I think we are making progress.

The conference stands adjourned.

(Whereupon, at 3:40 o'clock p.m., the Conference was adjourned.)

REPORTER'S CERTIFICATE

I, **Mauri Stach**, do hereby certify that I was present at the time and place first hereinbefore set forth, the aforementioned parties appearing, that I took down in shorthand the entire proceedings had at said time and place, afterwards transcribed said notes; and that the foregoing ______ pages constitute a true, correct and complete transcript of my said notes.

Mauri Stach

DATE: 2/6/64